SONY®

COLOR VIDEO CAMERA

BVP-90P

BETACAM SP™

MAINTENANCE MANUAL
1st Edition (Revised 2)
Serial No. 40001 and higher

SAFETY RELATED COMPONENT WARNING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

このマニュアルに記載されている事柄の著作権は当社にあり，説明内容は機器購入者の使用を目的としています。従って，当社の許可なしに無断で複写したり，説明内容（操作，保守等）と異なる目的で本マニュアルを使用することを禁止します。

The material contained in this manual consists of information that is the property of Sony Corporation and is intended solely for use by the purchasers of the equipment described in this manual.
Sony Corporation expressly prohibits the duplication of any portion of this manual or the use thereof for any purpose other than the operation or maintenance of the equipment described in this manual without the express written permission of Sony Corporation.

Le matériel contenu dans ce manuel consiste en informations qui sont la propriété de Sony Corporation et sont destinées exclusivement à l'usage des acquéreurs de l'équipement décrit dans ce manuel.
Sony Corporation interdit formellement la copie de quelque partie que ce soit de ce manuel ou son emploi pour tout autre but que des opérations ou entretiens de l'équipement à moins d'une permission écrite de Sony Corporation.

Das in dieser Anleitung enthaltene Material besteht aus Informationen, die Eigentum der Sony Corporation sind, und ausschließlich zum Gebrauch durch den Käufer der in dieser Anleitung beschriebenen Ausrüstung bestimmt sind.
Die Sony Corporation untersagt ausdrücklich die Vervielfältigung jeglicher Teile dieser Anleitung oder den Gebrauch derselben für irgendeinen anderen Zweck als die Bedienung oder Wartung der in dieser Anleitung beschriebenen Ausrüstung ohne ausdrückliche schriftliche Erlaubnis der Sony Corporation.

TABLE OF CONTENTS

1. INSTALLATION

1-1. Unpacking and Repacking 1-1
1-2. Packing in Carrying Case 1-1
1-3. Supplied Accessories 1-2
1-4. Connectors/Cable 1-3
  1-4-1. Connector Input/Output Signals 1-3
  1-4-2. Connector 1-7
  1-4-3. Removal of the CCZ, CCZQ Connectors 1-8
1-5. Installation Conditions 1-10
1-6. Set Up 1-11-1
  1-6-1. Attaching a Betacam VCR to the camera 1-11-1
  1-6-2. For System Use 1-12
1-7. Switch, Control Setting 1-13
  1-7-1. Daily Servicing 1-13
  1-7-2. Switches Setting on the Board 1-15
1-8. Instance of System Configuration 1-19

2. REPLACEMENT OF MAIN PARTS

2-1. Cabinet Removal 2-1
2-2. Replacement of CCD Unit 2-2
2-3. Replacement of Connector 2-3
  2-3-1. Replacement of Lens Connector 2-3
  2-3-2. Replacement of Remote Connector and PEDESTAL Control 2-4
  2-3-3. Replacement of VF Connector 2-4
2-4. Replacement of Function Switch 2-5
2-5. Replacement of DISP Switch 2-5
2-6. Viewfinder 2-6
  2-6-1. Replacement of CRT 2-6

3. SERVICE INFORMATION

3-1. Main Parts Layout 3-1
3-2. Circuit Description 3-2
3-3. Servicing Precaution 3-3
  3-3-1. Precaution on Replacement of VTR Connector (50P Connector) 3-3
  3-3-2. Warning of CCD Image Sensor Replacement 3-3
  3-3-3. Note in the use of CA-50/50P 3-3
  3-3-4. PROM, PLD 3-4
  3-3-5. Precaution of Replacement Parts 3-4
3-4. Tools and Jigs 3-4

4. ALIGNMENT

4-1. Preparation 4-1
  4-1-1. Adjustment Fixtures and Equipment 4-1
  4-1-2. Connection and Initial Setting 4-3
  4-1-3. Precaution on Adjustments 4-4
4-2. Overall Adjustment 4-5
  Step 1. Power Supply System 4-6
  Step 2. Synchronizing Signal System 4-8
    Step 2-1. Subcarrier Frequency adjustment 4-9
    Step 2-2. SYNC Phase adjustment 4-10
    Step 2-3. Burst Flag adjustment 4-11
    Step 2-4. H BLKG width adjustment 4-12
    Step 2-5. INT SC phase adjustment 4-13
  Step 3. Video Signal system 4-14
    Step 3-1. DC Set adjustment 4-15
    Step 3-2. Lens Shading adjustment 4-16
    Step 3-3. VA Gain adjustment 4-17
    Step 3-4. Pre-Black Set adjustment 4-18
    Step 3-5. Test Signal Level adjustment 4-19
    Step 3-6. Pre-Knee adjustment 4-20
    Step 3-7. Modulator Balance adjustment 4-21
    Step 3-8. Black Shading adjustment 4-22
    Step 3-9. White Shading adjustment 4-23
    Step 3-10. 1H, R, G, B Level adjustment 4-24
    Step 3-11. PR IN Gain adjustment 4-25
    Step 3-12. Pre-Pedestal level and PR OUT Gain adjustment 4-26
    Step 3-13. Gamma Balance adjustment 4-27
    Step 3-14. Carrier Balance adjustment 4-28
    Step 3-15. Black-set and Pedestal adjustment 4-29
    Step 3-16. Flare adjustment 4-31
    Step 3-17. RGB Video Level adjustment 4-32
    Step 3-18. Color Bar adjustment 4-33
    Step 3-19. EN Y Level adjustment 4-34
    Step 3-20. VU Gain adjustment 4-35
    Step 3-21. Burst adjustment 4-36
    Step 3-22. VTR Y/Y SYNC Level adjustment 4-37
    Step 3-23. VTR R-Y/B-Y Level adjustment 4-38
    Step 3-24. Zebra Level adjustment 4-39
    Step 3-25. Gamma Correction adjustment 4-40
    Step 3-26. Manual Knee adjustment 4-41
    Step 3-27. Automatic Knee and White Clip adjustment 4-43
  Step 4. Image Enhancer System 4-46
    Step 4-1. V DTL Null adjustment 4-47
    Step 4-2. DTL Black Clip adjustment 4-48
    Step 4-3. DTL Alias adjustment 4-49
    Step 4-4. H DTL Null adjustment 4-50

- Step 4-5. Black Balance adjustment 4-51
- Step 4-6. DTL Clip adjustment..................4-52
- Step 4-7. Crispening adjustment 4-53
- Step 4-8. Level Dependent adjustment........4-54
- Step 4-9. Aperture Alias adjustment 4-55
- Step 4-10. Aperture Null adjustment...........4-56
- Step 4-11. Aperture adjustment...................4-57
- Step 4-12. H/V Ratio adjustment 4-58
- Step 4-13. Detail Level adjustment 4-59
- Step 4-14. Knee Aperture adjustment..........4-60
- Step 5. Power Save Adjustment.....................4-62
- Step 6. Auto Control System.........................4-63
  - Step 6-1. Iris Weighting adjustment...........4-64
  - Step 6-2. Auto Iris adjustment 4-65
  - Step 6-3. Character Size adjustment..........4-66
  - Step 6-4. Audio Level adjustment...............4-67
- Step 7. Viewfinder System............................4-68
  - Step 7-1. Preparation for Viewfinder system adjustment................................4-69
  - Step 7-2. Vertical Hold adjustment............4-70
  - Step 7-3. Horizontal Hold adjustment.........4-71
  - Step 7-4. DC Balance adjustment..............4-72
  - Step 7-5. Bright Set adjustment 4-73
  - Step 7-6. Focus adjustment.......................4-74
  - Step 7-7. Picture Frame adjustment 4-75
  - Step 7-8. Peaking Level adjustment 4-76

A. BLOCK DIAGRAMS

- Overall..A-1
- CCD Block Diagram................................A-2
- VA-132 Block Diagram A-3
- PR-179U/179, PR-182 Block Diagram A-4
- IE-39/39P Block Diagram.......................A-5
- SG-206/206P Block Diagram..................A-6
- EN-107/107P Block Diagram..................A-7
- AT-77 Block Diagram..............................A-8
- VF Block Diagram..................................A-9

B. SEMICONDUCTOR

- Semiconductor B-1

C. SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS

- CCD Block (1/2) C-3
  - BI-64 (R)/(G)/(B)
  - CN-775
  - PA-156
- CCD Block (2/2) C-5
  - SW-572
  - SW-573
  - TG-123/123P, DR-201
  - VA-132
- PR-179U/179, PR-182.............................C-9
- IE-39/39P C-11
- SG-206/206P C-13
- EN-107/107P C-15
- AT-77 ....C-17
- RG-31/RG-32..C-19
- FRAME...C-21
  - CN-776
  - MB-455
  - SW-570
  - SW-571
  - VR-157
- VIEWFINDER...C-23
  - CN-777
  - LP-67
  - LP-68
  - LP-69
  - SW-565
  - VF-51
  - VR-151

D. SPARE PARTS

- Parts Information....................................D-1
- Exploded View D-2
- Electrical Parts List.................................D-12
- Packing Materials & Supplied Accessories...D-55

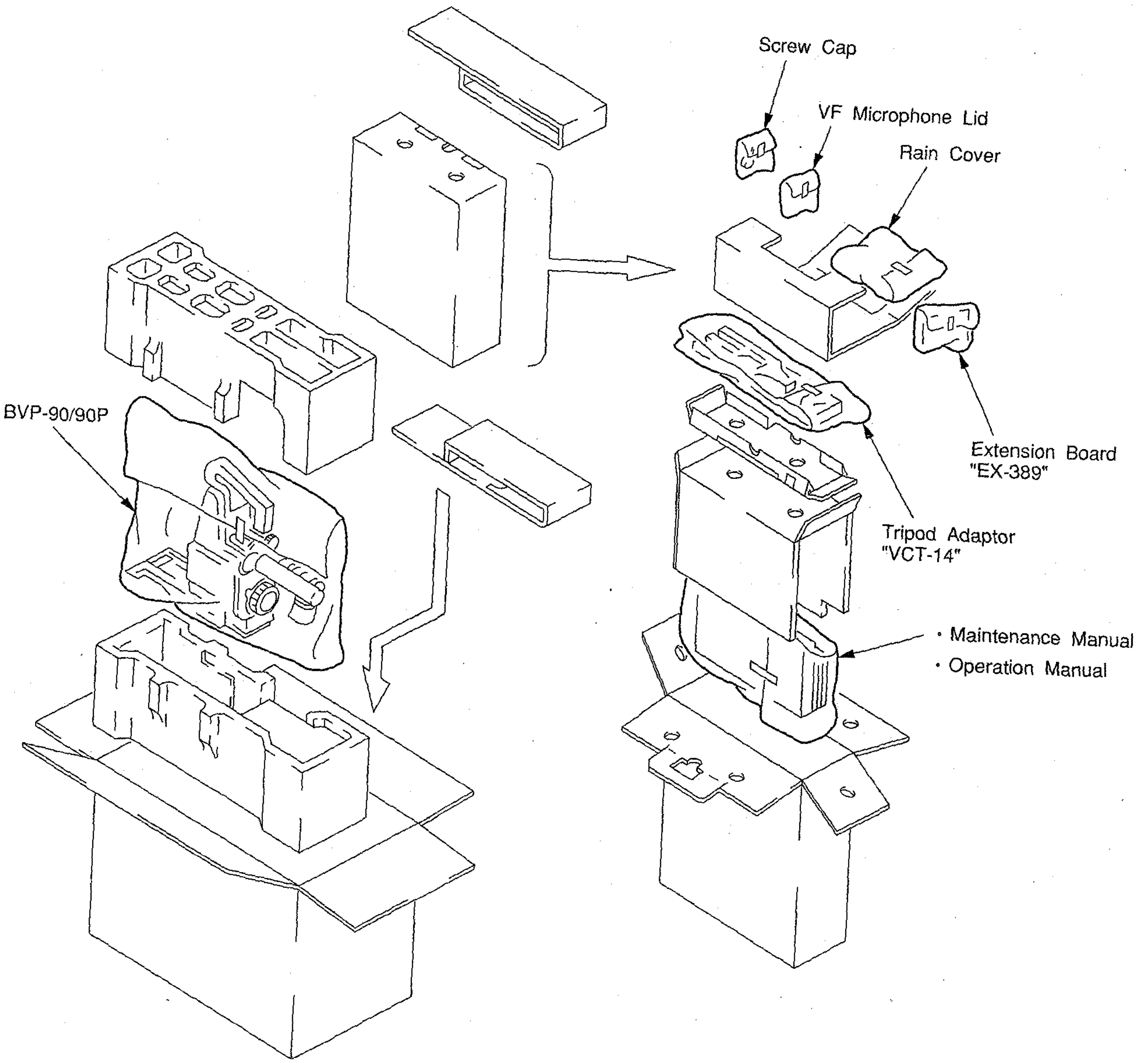
E. CHANGED PARTS

SECTION 1
INSTALLATION

1-1. UNPACKING AND REPACKING

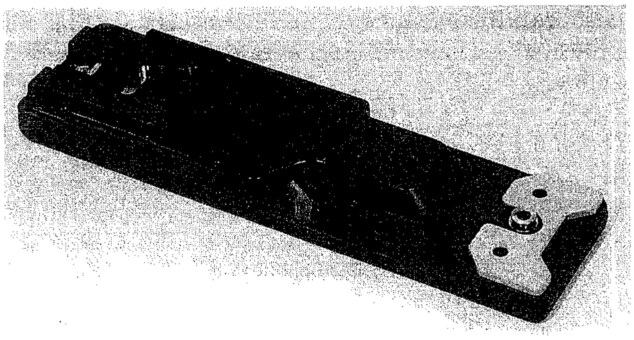
1-2. PACKING IN CARRYING CASE

The camera and VTR can be stored in the carrying case with the lens and viewfinder attached. This will protect the camera from the damage caused by outside pressure.

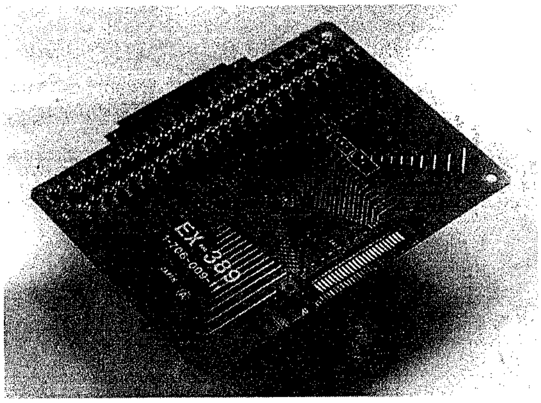

BVP-90/90P
Screw Cap
VF Microphone Lid
Rain Cover
Extension Board "EX-389"
Tripod Adaptor "VCT-14"
· Maintenance Manual
· Operation Manual

1-3. SUPPLIED ACCESSORIES

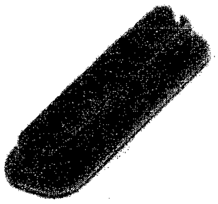
- Tripod attachment "VCT-14": 1
  Used when attaching the camera to a tripod.



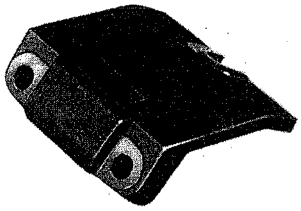
- Extension Board "EX-389": 1
  (Sony Parts No. A-8276-439-A)
  Use this for the check and repair of the main printed boards.
  (IE-39/39P board, VA-132 board, PR-179/179U board, EN-107/107P board, and SG-206/206P board)



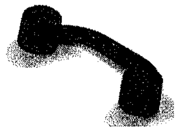
- 50-pin connector: 1 (attached with the camera)
  Dust Cap
  (Sony Parts No. 3-675-930-01)
  Protection cap used for preventing 50-pin connector from dust when BVP-90/90P is stored.



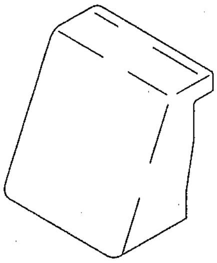
- VF Microphone Lid: 1
  (Sony Parts No. 3-720-955-02)
  When the supplied microphone is detached from the viewfinder, attach this to protect the viewfinder from rain.



- Screw Cap: 1 (Sony Parts No. 3-168-293-01)
  Used when attaching a Betacam VCR BVV-5/5PS to the camera.



- Rain cover: 1 (Sony Parts No. 3-711-780-01)
- Operation Manual: 1
  Instruction manual for BVP-90/90P.
- Maintenance Manual: 1
  Service Manual for BVP-90/90P.
- Cover: 1 (Sony Parts No. 3-180-079-01)



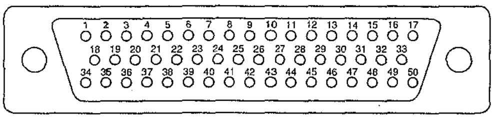
1-4. CONNECTORS/CABLE

1-4-1. Connector Input/Output Signals

The main connector input/output signals are as follows;

TEST OUT	BNC type VS SIGNAL 1 V p-p Zo=75Ω

50-PIN CONNECTOR


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

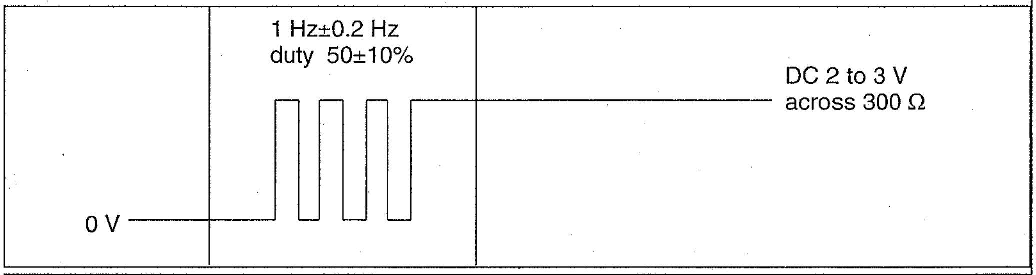
(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	GEN LOCK IN (X)	VBS 1 V p-p, Zi = 1 kΩ
2	GEN LOCK IN (G)	
3	+8.8 V OUT	REG (+8.8 V)
4	–5.0 V OUT	REG (–5.0 V)
5	UNREG (GND)	GND for UNREG
6	UNREG (GND)	
7	R VIDEO OUT (X)	V 0.7 V p-p, Zo = 75 Ω
8	G VIDEO OUT (X)	
9	B VIDEO OUT (X)	
10	RGB VIDEO OUT (G)	GND for R, G, B VIDEO
11	(Spare)	
12	(Spare)	
13	(Spare)	
14	SD IN/OUT	Serial data for camera control
15	MIC OUT (G)	Zo ≦ 600 Ω, –60 dBm balanced
16	MIC OUT (X)	
17	MIC OUT (Y)	
18	RET VIDEO IN (X)	V 0.7 V p-p, Zi = 1 kΩ
19	RET VIDEO IN (G)	
20	ZEBRA/AUDIO IN	AUDIO Zi ≧ 1 kΩ
21	(Spare)	
22	TAPE IND 2 IN	ON: +4.5 V, OFF; GND or OPEN
23	TAPE IND 1 IN	

PIN No.	SIGNAL	SPECIFICATION
24	REC ALARM IN	ON: +5 V, OFF: +2.5 V or 0 V, Zi ≧ 20 kΩ
25	BATT IND IN	Note 1), Zi = 300 Ω
26	PB REF IN	PB: +4.5 V, CAM: 0 V or OPEN
27	VTR START/STOP OUT	Note 2), Zo ≦ 10 kΩ
28	(Spare)	
29	R-Y VIDEO OUT (X)	Zo = 75 Ω 700 mV p-p (BVP-90) .... NTSC 525 mV p-p (BVP-90P) .... PAL
30	R-Y VIDEO OUT (G)	
31	AUDIO MONITOR IN	0 V (0 dB) ~ 7 V (–20 dB)
32	VTR SAVE OUT	SAVE: +4.5 V, STAND BY: 0 V, Zo ≦ 10 kΩ
33	AUDIO MONITOR IN	No connection
34	SYNC (VTR) OUT	5 V p-p, Negative pulse, Zo ≦ 100 Ω
35	(Spare)	
36	SHUT CLOSE IN	No connection
37	CF OUT	Color Framing
38	RET VIDEO ENABLE OUT	ENABLE: 0 V, DISABLE: +5 V or OPEN
39	UNREG IN	+10.5 V~+17 V
40	UNREG IN	
41	Y VIDEO OUT (X)	VS 1.0 V p-p, Zo = 75 Ω
42	Y VIDEO OUT (G)	
43	VBS OUT (X)	VBS 1.0 V p-p, Zo = 75 Ω
44	VBS OUT (G)	
45	(Spare)	
46	(Spare)	
47	(Spare)	
48	(Spare)	
49	B-Y VIDEO OUT (X)	Zo = 75 Ω 700 mV p-p (BVP-90) .... NTSC 525 mV p-p (BVP-90P) .... PAL
50	B-Y VIDEO OUT (G)	

Note. 1 Signal at Pin 25

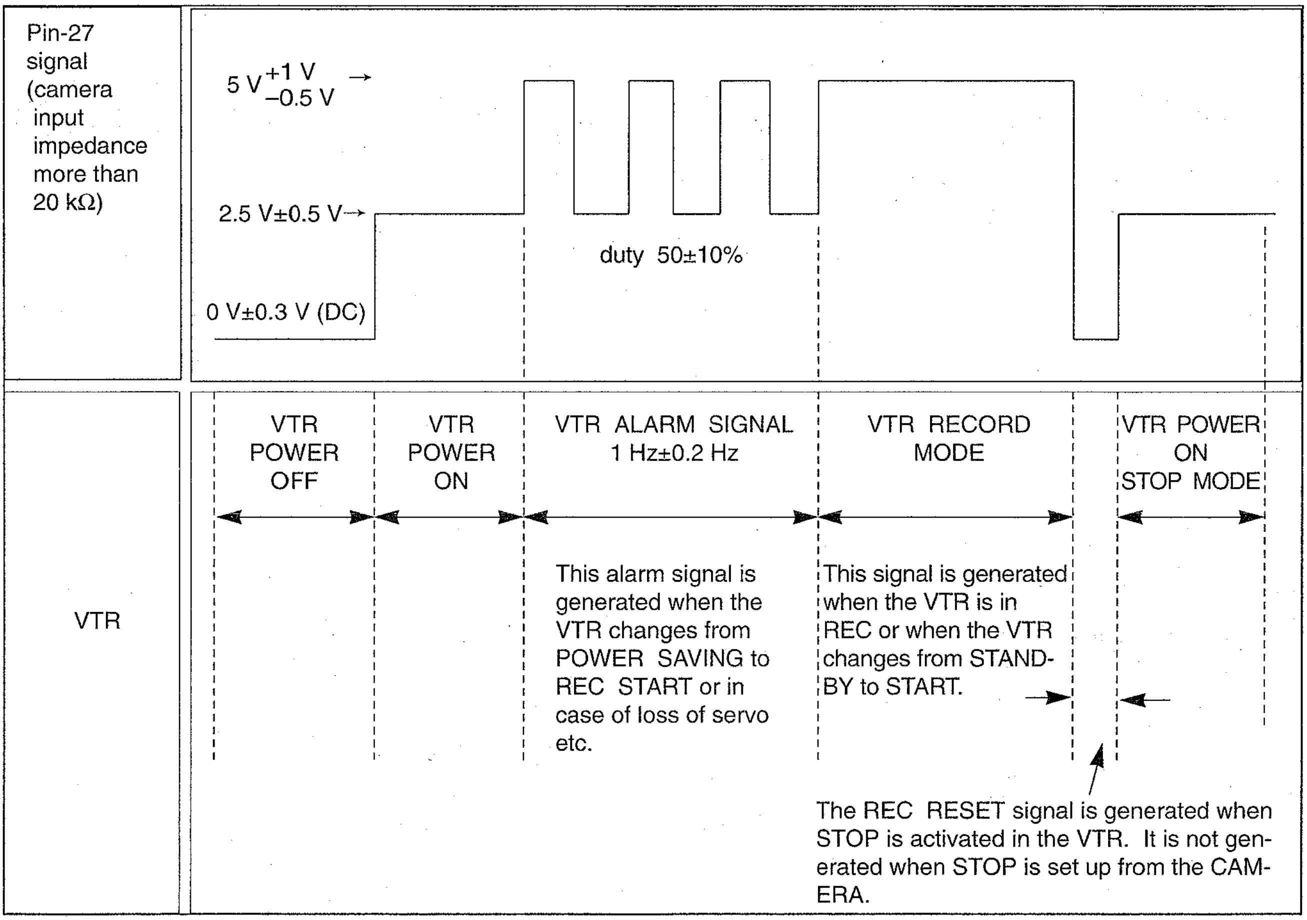
Battery voltage detection and warning signal generating circuits are located within the VTR. This signals are supplied from the VTR to the camera to either blink or light the LED at the bottom of the viewfinder.

BATTERY TERMINAL ADAPTOR (VTR INTERNAL BATTERY)	DC12 V to 11.1 V	DC 11.1 V to 10.8 V	PIN 25 TURNS HIGH AT DC 10.8 V. 10.6 V DC or below the VTR Internal Power is cut off so that the Battery Power is sent to Pin 25.
PIN 25 OUTPUT FROM VTR			
LED IN VIEWFINDER	NEITHER BLINKS NOR LIGHTS	BLINKS AT 1 Hz	LIGHTS

1 Hz±0.2 Hz
duty 50±10%
DC 2 to 3 V
across 300 Ω
0 V

Note. 2 Signal at Pin 27

When the VTR is ON, the input to the camera at pin 27 is 2.5 V DC. In VTR record mode the voltage is 5 V DC. When servo is not applied or if alarm signals are generated within the VTR, an alternating 1 Hz signal (2.5 Vp-p with 2.5 V DC as reference) is sent to the camera. At the tape end when the VTR enters Stop mode or when setting up the Stop mode from the VTR, 0 V DC is generated from 10 msec to 100 msec (called REC RESET). After REC RESET the signal level returns 60 2.5 V DC.

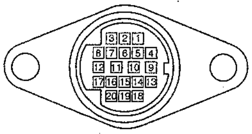

Pin-27 signal (camera input impedance more than 20 kΩ)
5 V +1 V −0.5 V →
2.5 V±0.5 V→
0 V±0.3 V (DC)
duty 50±10%
VTR
VTR POWER OFF
VTR POWER ON
VTR ALARM SIGNAL 1 Hz±0.2 Hz
VTR RECORD MODE
VTR POWER ON STOP MODE

This alarm signal is generated when the VTR changes from POWER SAVING to REC START or in case of loss of servo etc.

This signal is generated when the VTR is in REC or when the VTR changes from STAND-BY to START.

The REC RESET signal is generated when STOP is activated in the VTR. It is not generated when STOP is set up from the CAMERA.

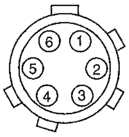
VF (20P)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	(Spare)	
2	ABNORMAL IND OUT	ON: GND OFF: OPEN
3	(Spare)	
4	(Spare)	
5	(Spare)	
6	CCIR/EIA OUT	CCIR: +8.8 V, EIA: 0 V, Zo = 1 kΩ
7	AUTO IND IN	ON: 0 V, OFF: OPEN
8	G TALLY OUT	ON: +4.5 V, OFF: 0 V or OPEN
9	(Spare)	
10	MIC IN (G)	GND for MIC
11	ZEBRA $\overline{\text{ON}}$ IN	ZEBRA ON: 0 V, OFF: +5 V or OPEN
12	VF VIDEO OUT (X)	VBS 1 V p-p, Zo ≦ 100 Ω
13	AUDIO CONT IN	0 V (0 dB) ~ +7 V (–20 dB)
14	MIC IN (Y)	Zo ≦ 600 Ω –60 dBm balanced
15	MIC IN (X)	
16	BATT IND OUT	ON: +4.5 V, OFF: 0 V or OPEN, Zo = 330 Ω
17	REC/TALLY OUT	ON: UNREG, OFF: 0 V or OPEN
18	+9.3 V (VF) OUT	REG +9.3 V
19	GND	GND
20	UNREG OUT	+10.5 V~17 V

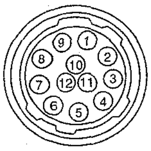
REMOTE (6P)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	SERIAL DATA IN	Serial data for camera control
2	SERIAL DATA OUT	
3	UNREG (G)	
4	VBS (X) OUT	VBS 1 V p-p, Zo = 75 Ω
5	VBS (G) OUT	
6	UNREG OUT	+10.5 V~+17 V

LENS (12P)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	RET VIDEO ENABLE IN	ENABLE: 0 V, DISABLE: +5 V or OPEN
2	VTR START/STOP OUT	TRIGGER 5 V p-p
3	GND	GND for UNREG
4	AUTO +5 V OUT	AUTO: +5 V, MANU: 0 V or OPEN
5	IRIS CONT OUT	+3.4 V (F16) ~ +6.2 V (F2.8)
6	UNREG OUT	+10.5 V~+17 V
7	IRIS POSITION IN	+3.4 V (F16)~+6.2 V (F2.8)
8	REMOTE/LOCAL OUT	0 V
9	EXTENDER ON/OFF IN	ON: 0 V, OFF: +5 V or OPEN
10	ZOOM POSITION IN	WIDE: 2V TELE: 7V
11	(Spare)	
12	(Spare)	

1-4-2. Connector

Connection made with the connector panels during installation or service, should be made with the connectors/complete cable assemblies specified in the following list, or equipment parts;

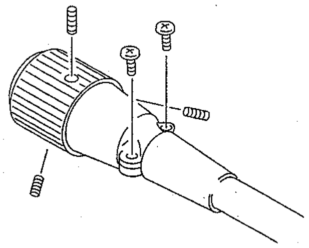
Connector function	Parts No., and name of connector with cable
TEST OUT (BNC)	1-560-069-11 PLUG, BNC or B-B Cable assembly (Cable length 1.5 m, optional)
REMOTE (6P, FEMALE)	1-560-078-00 PLUG, 6P MALE

1-4-3. Removal of the CCZ, CCZQ Connectors

CCZ Connector (Removal)

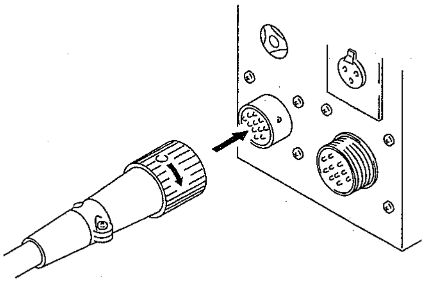
Step 1.

Remove the three hexagonal setscrews and the two setscrews.



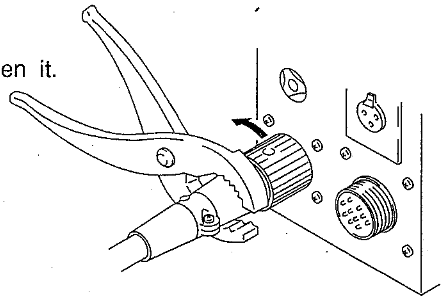
Step 2.

Fix the CCZ connector at the camera or VTR connector.



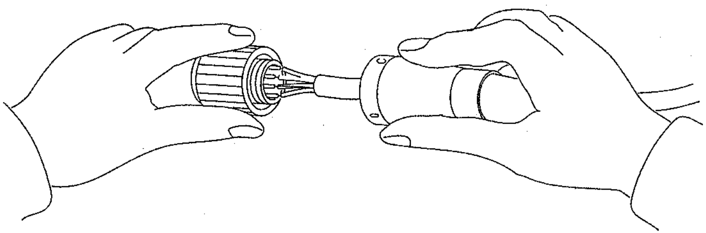
Step 3.

Rotate the CCZ connector counterclockwise by the plier and loosen it.



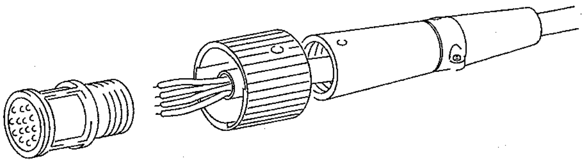
Step 4.

It can be removed by hand and unsolder.

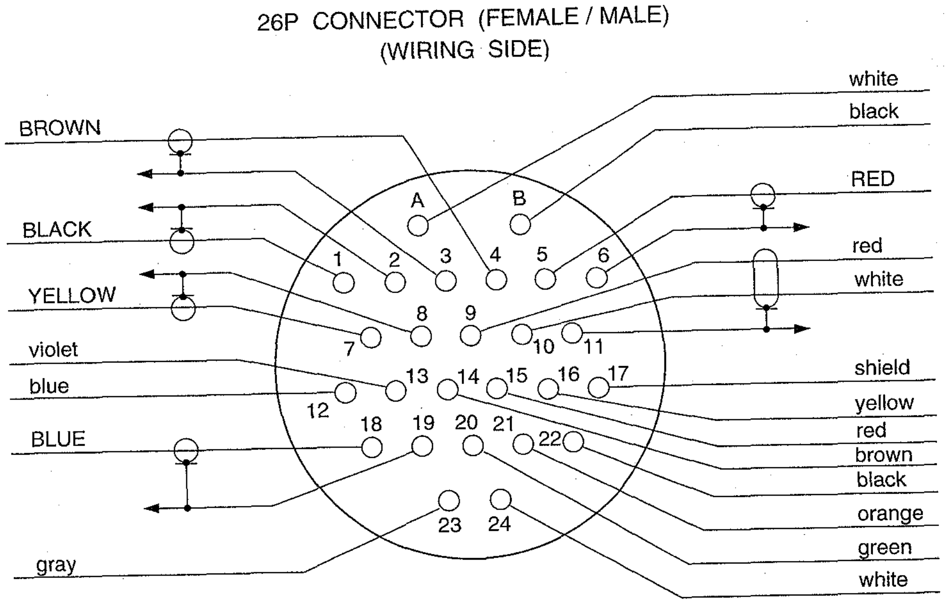


Step 5.

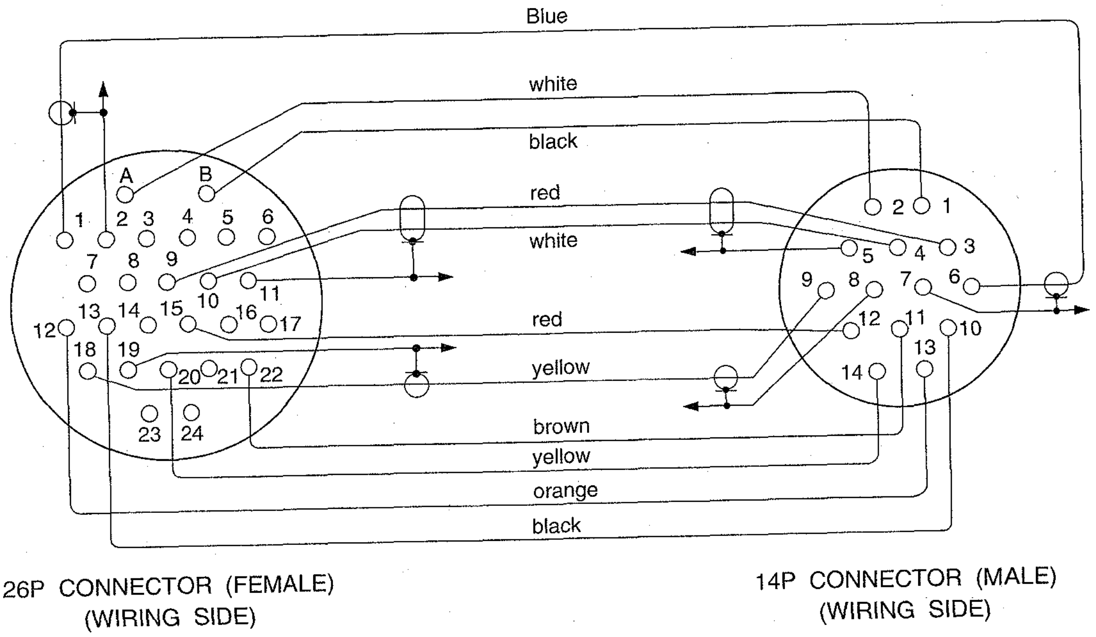
It can be broken up as shown in Figure.



CCZ Cable (wiring diagram)


26P CONNECTOR (FEMALE / MALE)
(WIRING SIDE)
BROWN
BLACK
YELLOW
violet
blue
BLUE
gray
white
black
RED
red
white
shield
yellow
red
brown
black
orange
green
white
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

CCZQ Cable (wiring diagram)


Blue
white
black
red
white
red
yellow
brown
yellow
orange
black
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
2
1
3
5
4
9
8
7
6
12
11
10
13
14
26P CONNECTOR (FEMALE)
(WIRING SIDE)
14P CONNECTOR (MALE)
(WIRING SIDE)

1-5. INSTALLATION CONDITIONS

Operating temperature	−20°C to +45°C
Storage temperature	−20°C to +60°C
Humidity	Non condense

- Avoid rough handling or mechanical shock to the camera.
- Avoid placing subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Clean the viewfinder lens with a lens cleaner available at camera stores.
  Do not use any type of solvent, such as alcohol, benzine or thinner.

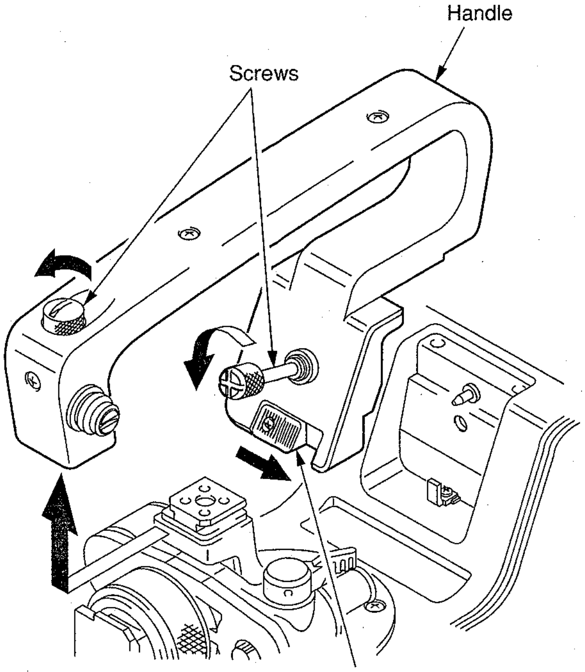
- After using the camera
  Turn off the power of a equipment connected to the camera.

1-6. SET UP

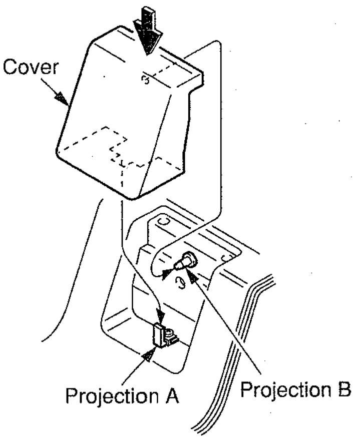
1-6-1. Attaching a Betacam VCR to the camera

(1) When the grip of VCR is used;
(only for BVV-5/5PS)

Step 1. Loosen the two screws and then remove the handle by sliding the release knob in the direction of the arrow.

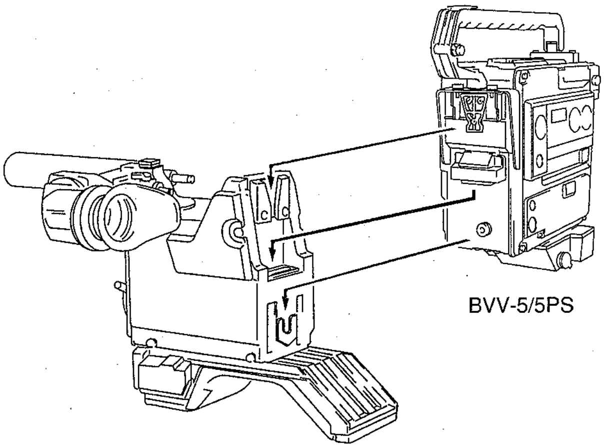

Handle
Screws
Release Knob

Step 2. Fit the supplied cover as illustrated.

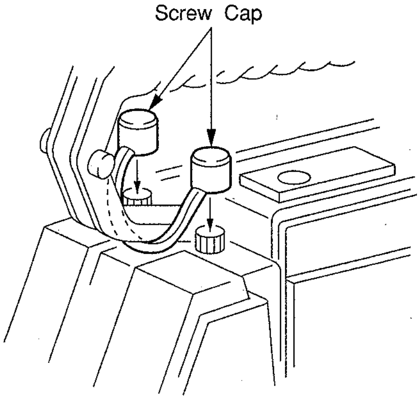

Cover
Projection A
Projection B

- Put a projection A into a hole at the bottom of the cover, then put a projection B into a hole in the back of the cover while pressing down the cover.

Step 3. Attach the VCR to the camera.



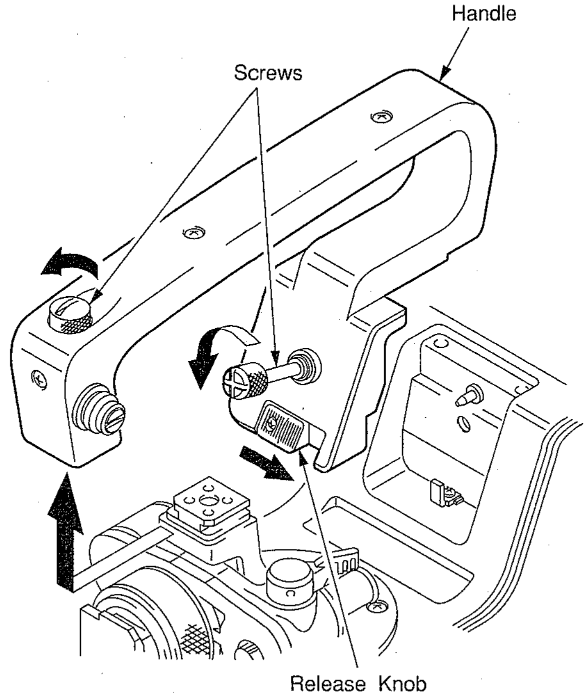
Step 4. Tighten the two screws (supplied with the VCR) securely. Attach the screw cap (supplied).



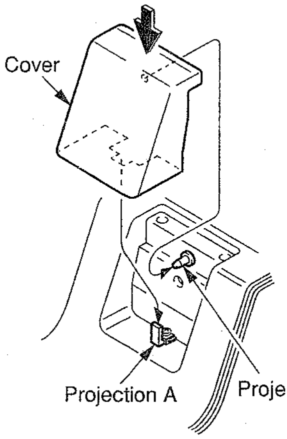
(2) When a special handle is used;
(for BVV-1/1A/1PS/1APS and BVV-5/5PS)

When a Betacam VCR BVV-1/1A/1PS/1APS is used together with the BVP-90/90P, a special handle (Sony Parts No. A-8267-257-A) is required.
This handle, which is easier to carry can be also used together with the to BVV-5/5PS. The handle is supplied with the BVW-590/590P.

Step 1. Loosen the two screws and then remove the handle by sliding the release knob in the direction of the arrow.


Handle
Screws
Release Knob

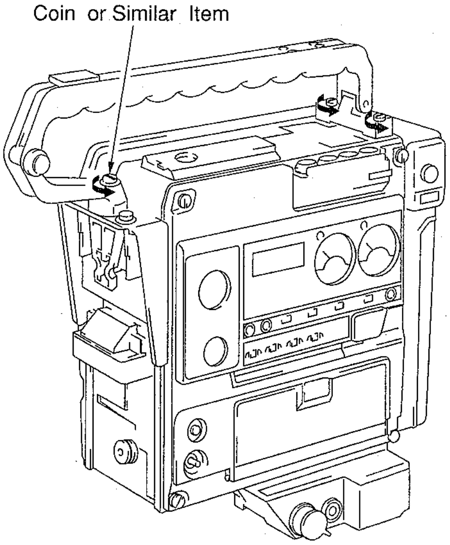
Step 2. Fit the supplied cover as illustrated.


Cover
Projection A
Projection B

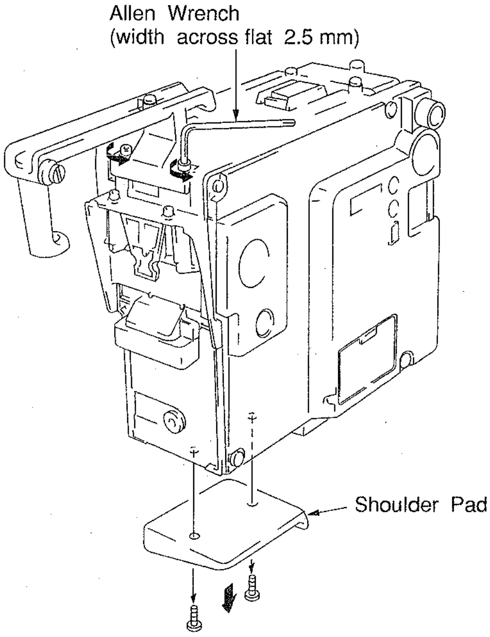
- Put a projection A into a hole at the bottom of the cover, then put a projection B into a hole in the back of the cover while pressing down the cover.

Step 3. Remove the grip and shoulder pad (BVV-1/1A/1PS/1APS only) from the VCR.

BVV-5/5PS

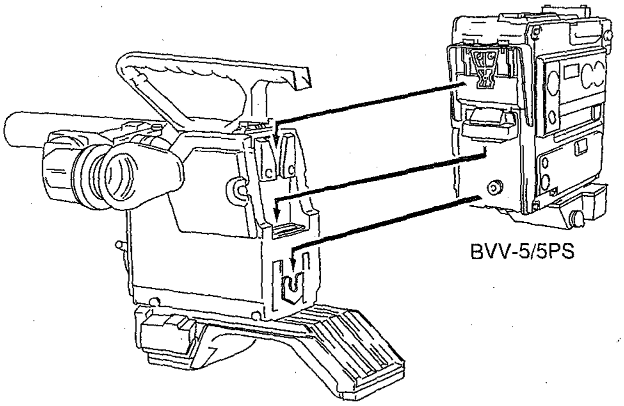

Coin or Similar Item

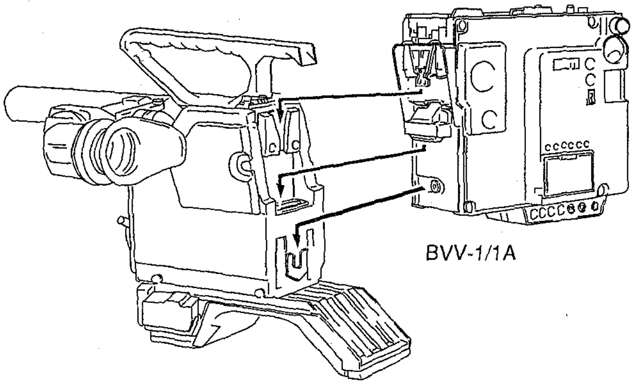
BVV-1/1A/1PS/1APS


Allen Wrench
(width across flat 2.5 mm)
Shoulder Pad

Note: Put the supplied blind screws into the unoccupied screw holes for the grip. (BVV-1/1A/1PS/1APS only)

Step 4. Attach the VCR to the camera.

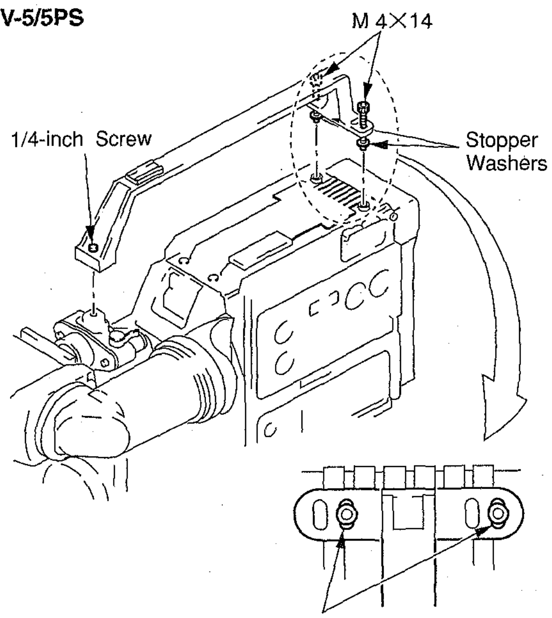




Step 5. Tighten the two screws (M4×14) using an allen wrench having width across flats of 3 mm. Tighten the screw (1/4-inch screw) using an allen wrench having width across flats of 3/16 inches (Sony Parts No. 7-721-130-36).

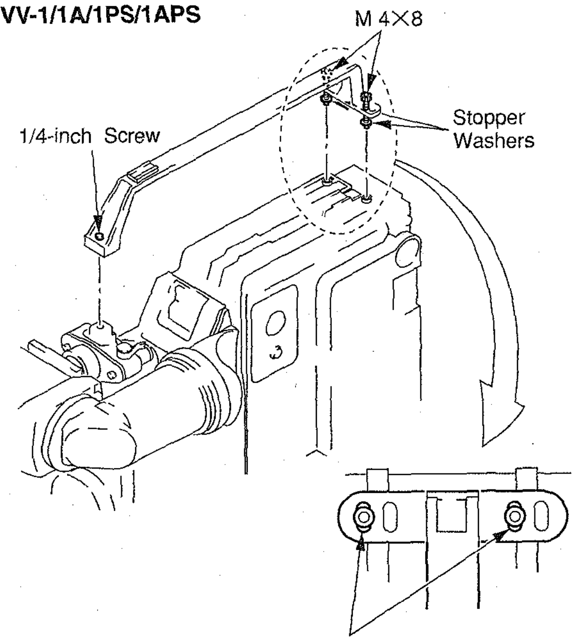
Note: When attaching the special handle to the BVV-1/1A/1PS/1APS, replace the two screws M4×14 with M4×8 and change the screw holes as illustrated. Reuse the stopper washers which was paired with the screw M4×14.

BVV-5/5PS


M 4X14
1/4-inch Screw
Stopper Washers

Use these screw holes.

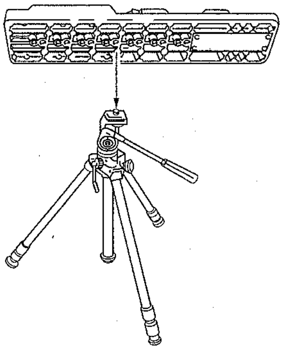
BVV-1/1A/1PS/1APS


M 4X8
1/4-inch Screw
Stopper Washers

Use these screw holes.

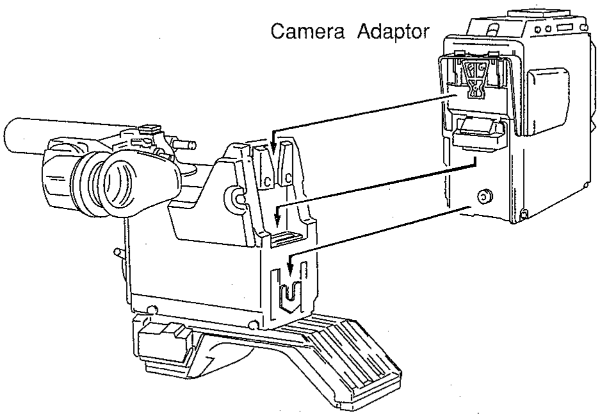
1-6-2. For System Use

Step 1. Attach the tripod attachment (VCT-14) to the tripod.
Fit the screw of the tripod into one of the screw holes on the bottom of the tripod attachment.

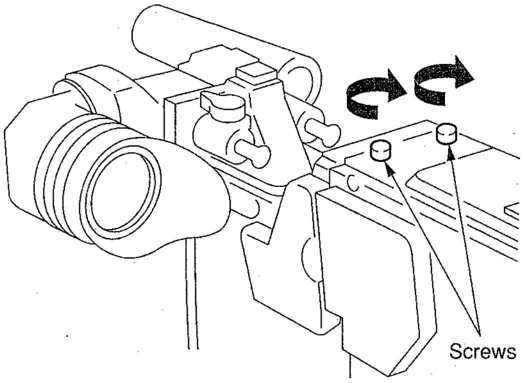


Step 2. Remove the handle of the camera referring to Section 1-6-1. Attaching a Betacam VCR to the camera, step1.

Step 3. Attach the camera adaptor to the camera.

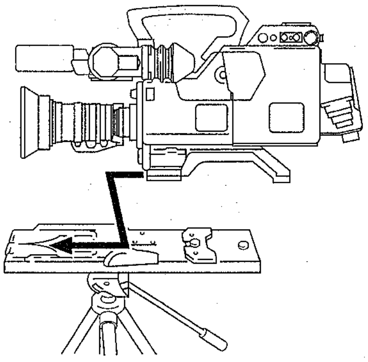


Step 4. Tighten the two screws (supplied with the camera adaptor) securely.



Step 5. Attach the handle to the camera.

Step 6. Attach the camera to the tripod attachment. Slide the camera along the groove of the tripod attachment until it clicks.



Step 7. Attach the viewfinder (BVF-55/55CE) to the shoe on the camera adaptor.
Refer to operation and maintenance manual of the viewfinder for detailes on installation.

1-7. SWITCH, CONTROL SETTING

1-7-1. Daily Servicing

The camera needs the following adjustments for daily servicing because a change is caused in temperature or with the passage of time.
After the CCD unit has been replaced, or in overhauling, overall adjustment is required according to Section 4 ALIGNMENT.

VA-132

BLK SET (R, G, B) (RV55, 52, 56, 53, 57, 54)
Adjust so that the pedestal level does not change even when the GAIN switch is switched over.

FLR R, G, B (RV9, 19, 29)
Adjust to compensate the dispersion of the video level due to the flare.

TEST LVL R, G, B (RV3, 13, 23)
Turn on the TEST SAW ON/OFF swich on the SG-206/206P board. Make sure that the level at TEST OUT connector is 100 IRE (700mV).
If the specifcation is not met, adjust these controls, after checking the gain of main video signal is correct.

GAIN R, G, B (RV2, 12, 22)
Adjust so that the video level of output at VA-132 board is 0.5 Vp-p.

IE-39/39P

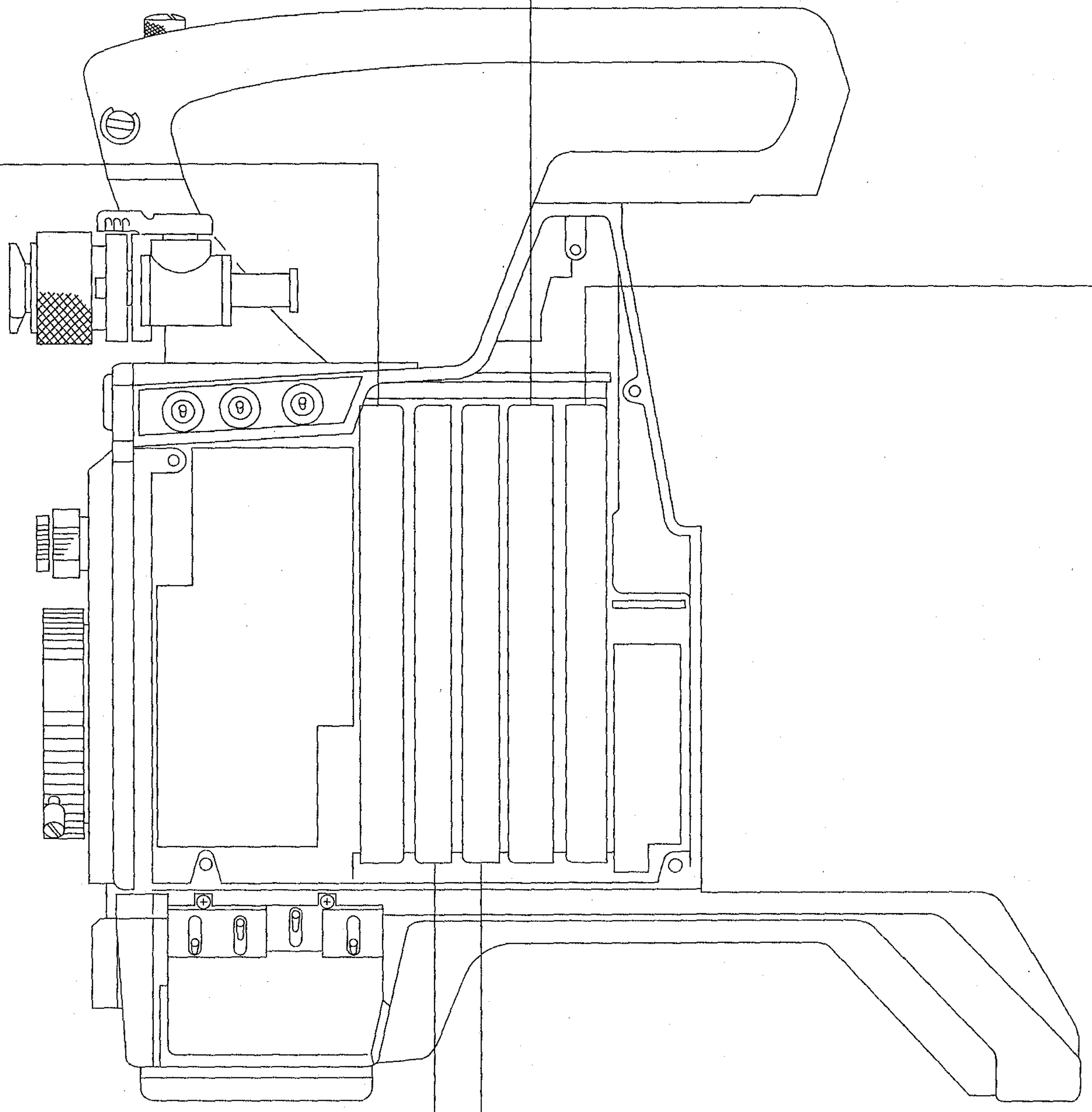
DTL ON/OFF (S1)
Turn on or off the detail signal.

DTL (RV15)
Adjust the detail amount.

H / V RATIO (RV12)
Adjust the balance of the horizontal and vertical of the detail signals.

LEVEL DEPEND (RV7, 22)
Adjust so that the detail signal near the black level is eliminated.

CRISPENING (RV14)
Adjust so that the small amplitude noise is eliminated from the detail signal.



EN-107/107P

ZEBRA 70% (RV11)
ZEBRA 100% (RV21)
Adjust so that the 70 IRE (490 mV) or 100 IRE (700 mV) section is displayed on the viewfinder screen in a zebra pattern.

Q / U BAL (RV15)
I / V BAL (RV16)
Adjust two controls alternatively and observe the output video signal (composite video signal) corresponding to the black portion.
The adjustment should be minimized the carrier leakage.

SG-206/206P

TEST SAW ON / OFF (S7)
Used for checking the video level.
When turned on, the lens is automatically closed and the TEST SAW signal is output to the video signal system.
Normally set to "OFF".

PE179/179U

GAMMA R, G, B (RV4, 11, 17)
When a 11-step grayscale chart is shot so that the white level is 100 IRE (700 mV), set the cross point of the waveform at 60 IRE (420 mV).

IRIS SET (RV28)
IRIS MODE (RV27)
Adjust the detection method of the video level and the sensitivity for the signal when the lens iris is set to "Auto" mode. The peak level detection is selected when the IRIS MODE is at the fully counterclockwise position and the average level detection is selected at its fully clockwise position. Set the IRIS MODE to the mid position, shoot the gray scale chart and adjust the IRIS SET so that the white peak level is 100 IRE (700 mV).

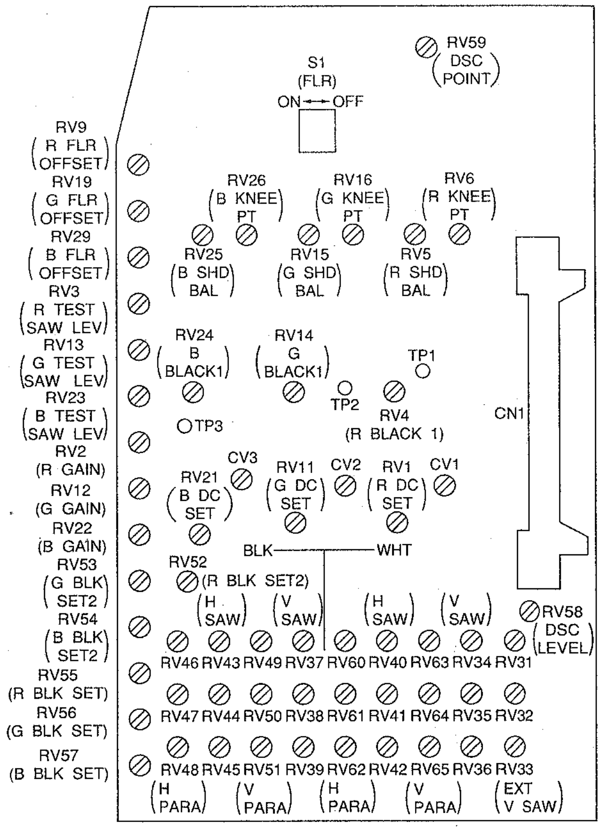
W. CLIP R, G, B (RV35, 34, 33)
When the gain is increased, adjust the white level.

PED R, G, B (RV2, 9, 15)
Close the lens iris, and set the pedestal level at 3 IRE.

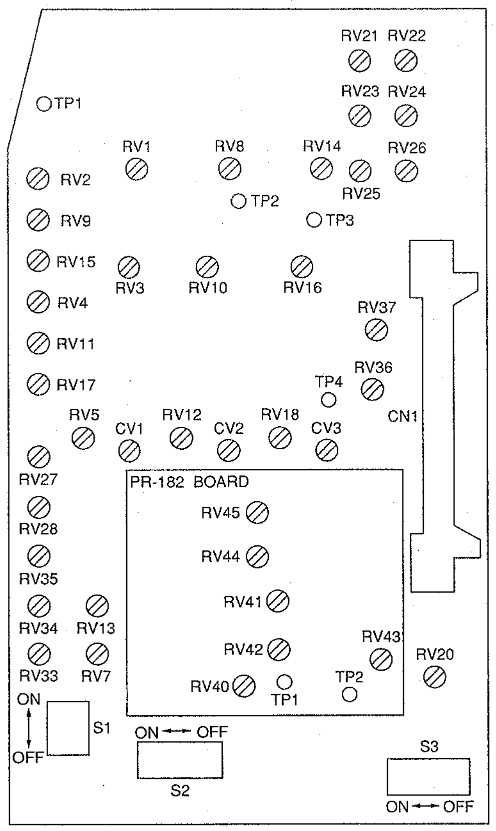
MASK ON/OFF (S1)
Change over the masking signal to ON or OFF.
Factory-setting is OFF for the BVP-90 and is ON for the BVP-90P.

LEVEL CHECK SHEET

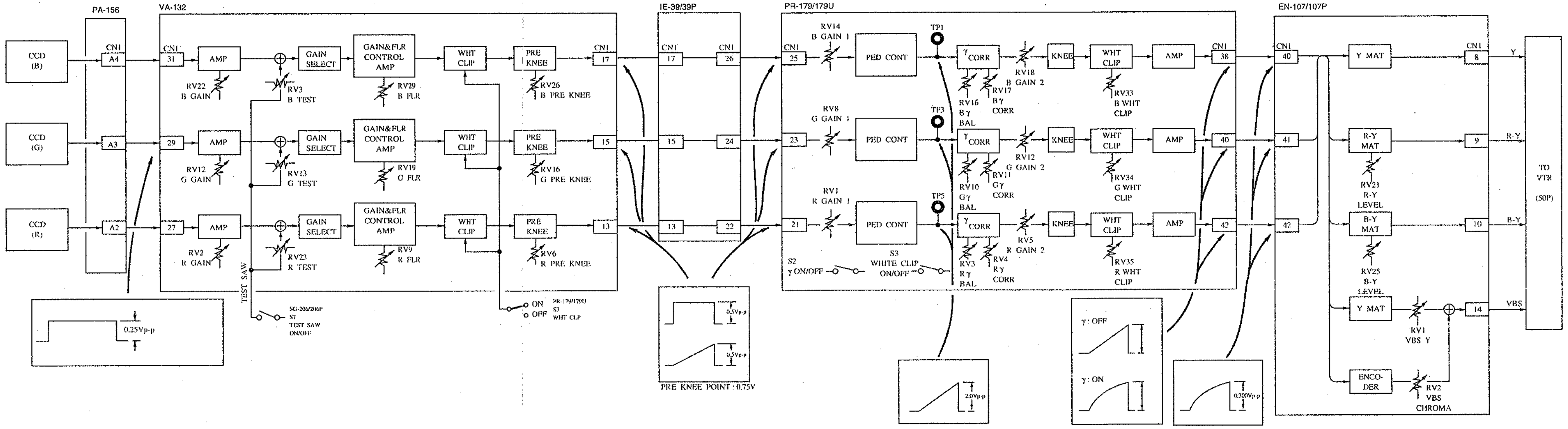
1. Adjust the iris control so that the video level at CN1-29/VA-132 board is 0.25±0.03 Vp-p.
2. Adjust the ⊘ RV12 (G GAIN)/VA-132 board so that the video level at CN1-23/PR-179, 179U board is 0.5±0.01 Vp-p.
3. Adjust the ⊘RV2 (R GAIN)/VA-132 board so that the video level at CN1-21/PR-179, 179U board is 0.5±0.01 Vp-p.
4. Adjust the ⊘ RV22 (B GAIN)/VA-132 board so that the video level at CN1-25/PR-179, 179U board is 0.5±0.01 Vp-p.
5. Set the S7 (TEST ON/OFF)/SG-206, 206P board to "ON".
6. Adjust the ⊘ RV13 (G TEST)/VA-132 board so that the video level at CN1-23/PR-179, 179U board is 0.5±0.01 Vp-p.
7. Adjust the ⊘ RV3 (R TEST)/VA-132 board so that the video level at CN1-21/PR-179, 179U board is 0.5±0.01 Vp-p.
8. Adjust the ⊘ RV23 (B TEST)/VA-132 board so that the video level at CN1-25/PR-179, 179U board is 0.5±0.01 Vp-p.
9. Adjust the ⊘RV10 (G γ BAL)/PR-179, 179U board for such a position that the white peak level at CN1-40/PR-179, 179U board does not change while setting S2 (γ ON/OFF)/PR-179, 179U board at ON or OFF.
10. Adjust the ⊘ RV3 (R γ BAL)/PR-179, 179U board for such a position that the white peak level at CN1-42/PR-179, 179U board does not change while setting S2 (γ ON/OFF)/PR-179, 179U board at ON or OFF.
11. Adjust the ⊘RV16 (B γ BAL)/179, 179U board for such a position that the white peak level at CN1-38/PR-179, 179U board does not change while setting S2 (γ ON/OFF)/PR-179, 179U board at ON or OFF.
12. Adjust the ⊘ RV12 (G GAIN)/PR-179, 179U board so that the video level at CN1-40/PR-179, 179U board is 0.700±0.01 Vp-p.
13. Adjust the ⊘ RV5 (R GAIN)/PR-179, 179U board so that the video level at CN1-42/PR-179, 179U board is 0.700±0.01 Vp-p.
14. Adjust the ⊘RV18 (B GAIN)/PR-179, 179U board so that the video level at CN1-38/PR-179, 179U board is 0.700±0.01 Vp-p.


S1
(FLR)
ON ↔ OFF
RV59 (DSC POINT)
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
TP3
RV4 (R BLACK 1)
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)


RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV25
TP2
TP3
RV2
RV9
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
RV17
TP4
CN1
RV5
CV1
RV12
CV2
RV18
CV3
RV27
RV28
RV35
RV34 RV13
RV33 RV7
PR-182 BOARD
RV45
RV44
RV41
RV42
RV43
RV40
TP1
TP2
RV20
ON
OFF
S1
ON ↔ OFF
S2
S3
ON ↔ OFF

PR-179U/179 BOARD (COMPONENT SIDE)


PA-156
VA-132
IE-39/39P
PR-179/179U
EN-107/107P
CCD (B)
CCD (G)
CCD (R)
CN1
A4
A3
A2
AMP
GAIN SELECT
GAIN&FLR CONTROL AMP
WHT CLIP
PRE KNEE
RV22 B GAIN
RV12 G GAIN
RV2 R GAIN
RV3 B TEST
RV13 G TEST
RV23 R TEST
RV29 B FLR
RV19 G FLR
RV9 R FLR
RV26 B PRE KNEE
RV16 G PRE KNEE
RV6 R PRE KNEE
TEST SAW
SG-206/206P S7 TEST SAW ON/OFF
ON OFF PR-179/179U S3 WHT CLP
0.25Vp-p
PRE KNEE POINT 0.75V
RV14 B GAIN 1
RV8 G GAIN 1
RV1 R GAIN 1
TP1
TP3
TP5
PED CONT
γ CORR
KNEE
WHT CLIP
AMP
RV18 B GAIN 2
RV12 G GAIN 2
RV5 R GAIN 2
RV16 B γ BAL
RV10 G γ BAL
RV3 R γ BAL
RV17 B γ CORR
RV11 G γ CORR
RV4 R γ CORR
RV33 B WHT CLIP
RV34 G WHT CLIP
RV35 R WHT CLIP
S2 γ ON/OFF
S3 WHITE CLIP ON/OFF
γ: OFF
γ: ON
Y MAT
R-Y MAT
B-Y MAT
RV21 R-Y LEVEL
RV25 B-Y LEVEL
RV1 VBS Y
ENCODER
RV2 VBS CHROMA
Y
R-Y
B-Y
VBS
TO VTR (50P)

1-7-2. Switches Setting on the Board

PR-179/179U board

- S1 (MASK ON/OFF)
  When turned ON, LINEAR MATRIX MASKING is turned ON and obtain the high saturated color appearance. If need require, set to "ON".
  However, when the BVP-90/90P is remotely controlled by CCU or RM, be sure to set this switch to "ON".
  When the unit is shipped, this switch is set to "OFF" for the BVP-90, on the other hand, set to "ON" for the BVP-90P.

- S2 (γ ON/OFF)
  When turned on, the gamma correction is performed so that the overall characteristic of signals between camera and monitor is "γ =1". Normally set to "ON".

- S3 (WHITE CLIP & KNEE ON/OFF)
  When turned off, the white clipping and knee are automatically cancelled. Use for the video signal system adjustment. Normally set to "ON".

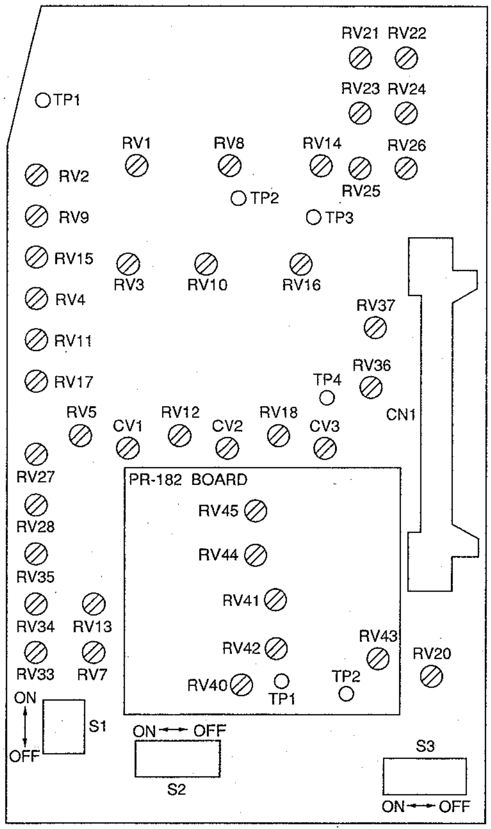
EN-107/107P board

- S1-1 (ZEBRA REMOTE)
  Set this switch to "ON" to activate the zebra pattern display on the BVF-55/55CE series viewfinder screen. Factory-setting is "OFF".

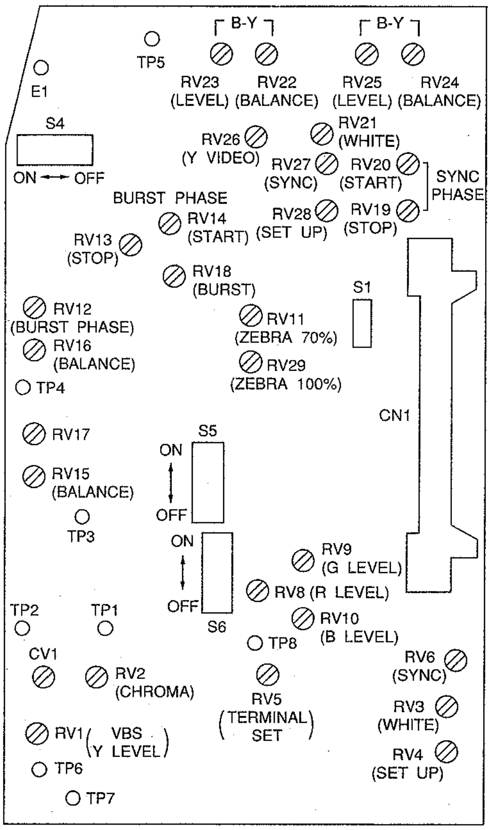
- S1-2 (ZEBRA 70%)
- S1-3 (ZEBRA 100%)
  When this switch is set to "OFF", 70% (or 100%) level portion is displayed in a zebra pattern on the viewfinder. When set to "ON", the zebra signal is forcibly turned off. Factory-setting is "ON".

- S4 (1/V) S5 (Q/U)
  When turned on, the 1 (Q) signal is added to the encoder circuit. Use for the encoder circuit adjustment. Normally set to "ON".

- S6 (CHROMA OFF)
  Set this switch to "OFF" to turn off the chroma signal. Factory-setting is "ON".


RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
TP4
RV17
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34 RV13
RV43
RV42
RV20
RV33 RV7
RV40
TP1
TP2
ON
S1
OFF
ON←→OFF
S2
S3
ON←→OFF

PR-179U/179 BOARD (COMPONENT SIDE)


B-Y
B-Y
TP5
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
RV26 (Y VIDEO)
RV21 (WHITE)
ON←→OFF
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
RV15 (BALANCE)
OFF
TP3
ON
RV9 (G LEVEL)
RV8 (R LEVEL)
TP2
TP1
OFF
RV10 (B LEVEL)
S6
TP8
CV1
RV6 (SYNC)
RV2 (CHROMA)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
TP6
RV4 (SET UP)
TP7

EN-107/107P BOARD (COMPONENT SIDE)

IE-39/39P board

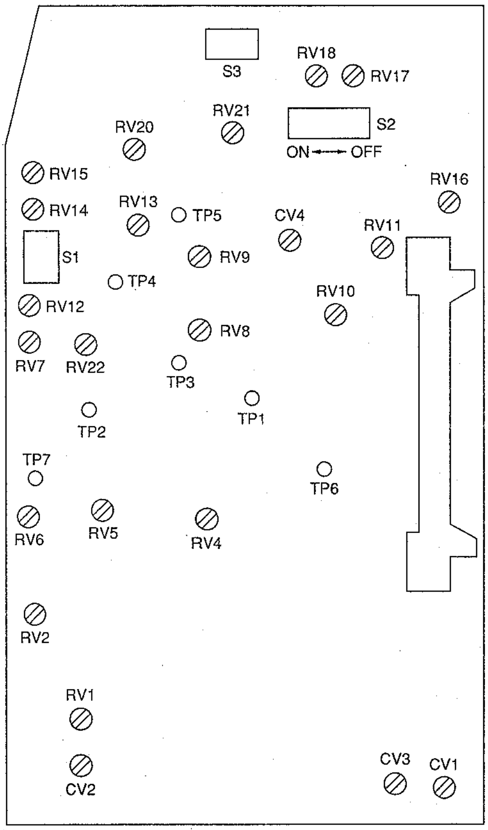
- S1 (DTL ON/OFF)
Selects whether the detail signal which generated from the IE-39/39P board for resolution improvement should be added to the video signal or not.
When set to "ON", the detail signal is added. Factory-setting is "ON".

- S2 (APERTURE ON/OFF)
This switch is used to turn ON or OFF the aperture circuit. The circuit does not work with this switch set to OFF. The switch is factory-set to ON.

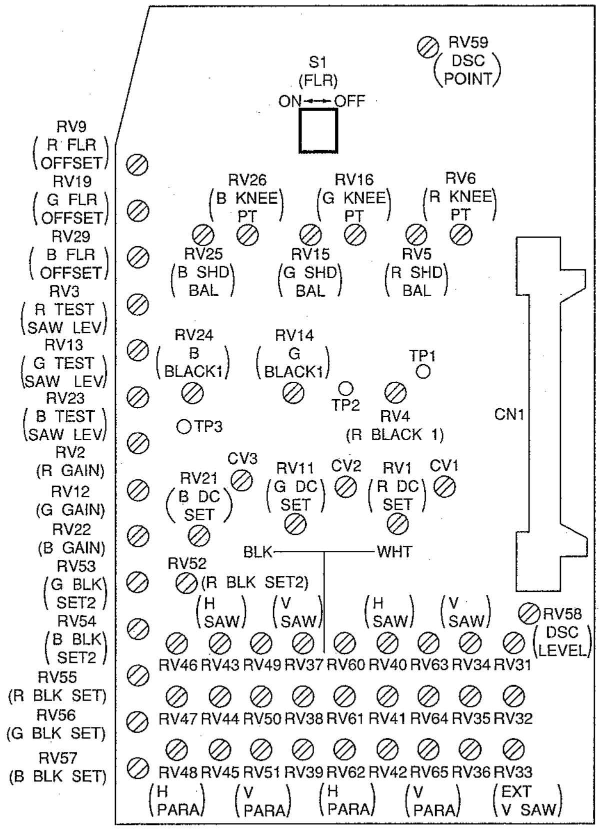
- S3 (FIELD/FRAME)
Selects the ways of CCD picture readout; "FIELD" or "FRAME". The switch is factory–set to "FIELD".

VA-132 board

- S1 (FLR)
Used to turn OFF the flare circuit. Turn OFF for the flare adjustment.
Factory-setting is "ON".


S3
RV18
RV17
RV21
S2
ON ←→ OFF
RV20
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP2
TP1
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV2
CV3
CV1

IE-39/39P BOARD (COMPONENT SIDE)


S1
(FLR)
ON ←→ OFF
RV59 (DSC POINT)
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
RV4 (R BLACK 1)
TP3
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
(H SAW)
(V SAW)
(H SAW)
(V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA)
(V PARA)
(H PARA)
(V PARA)
(EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)

SG-206/206P board

- S1 (EXT SC PHASE 0°/180°)
- RV2 (EXT SC PHASE)

Adjusts the SC (subcarrier) phase of the output signal in the external synchronous mode. By switching the switch S1, the SC phase will be inverted. Use RV2 for fine adjustment.

- S2 (INT SC PHASE 0°/180°)
- RV1 (INT SC PHASE)

Adjusts the SC (subscatter) phase of the output signal in the internal synchronous mode. By switching the switch S2, the SC phase will be inverted.
(Be sure not to turn RV1 except when adjustment is out of condition.)

- RV4 (H PHASE)

Adjusts the phase of the camera video signal in the external synchronous mode.

- S3 (CABLE COMP)

In the external synchronous mode, cable compensation is performed for the genlock signal. Set it to "OFF" for a cable under 150m and set to "ON" for one exceeding 150m.

- S4 (CF OFF)

When turned on, the color framing pulse is fed from pin 37 of 50-pin connectors. Factory-setting is "ON".

- S5 (VBL); for BVP-90

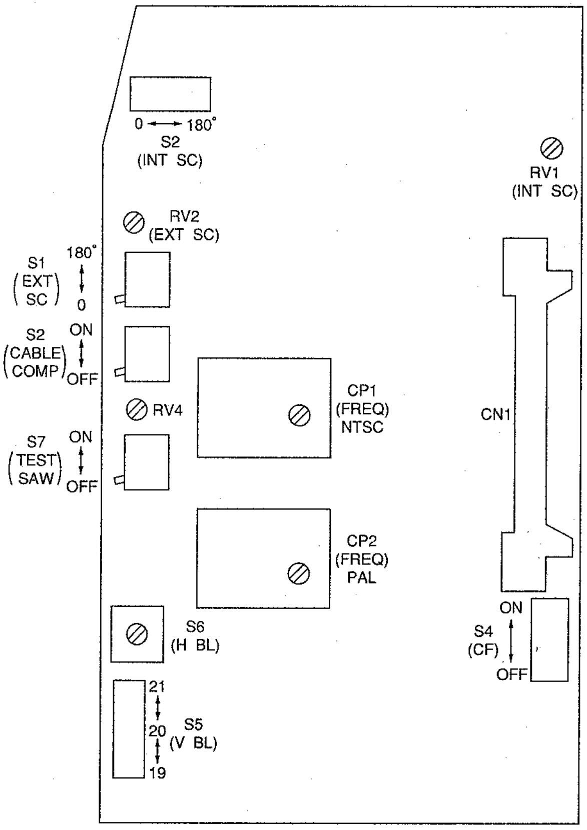
Selects the vertical blanking width. Factory-setting is "20 H".

- S6 (HBL)

Selects the horizontal blanking width. It has been adjusted to 10.9±2 uS at the factory.

- S7 (TEST SAW ON/OFF)

When set to "ON", the TEST SAW signal is output. Use for the video signal system adjustment.
When the BVP-90/90P is remotely controlled by CCU or RM, be sure to set this switch to "OFF".
Factory-setting is "OFF".


0 ↔ 180°
S2
(INT SC)
RV1
(INT SC)
RV2
(EXT SC)
S1
(EXT SC)
180°
0
S2
(CABLE COMP)
ON
OFF
RV4
CP1
(FREQ)
NTSC
CN1
S7
(TEST SAW)
ON
OFF
CP2
(FREQ)
PAL
ON
S4
(CF)
OFF
S6
(H BL)
21
20
19
S5
(V BL)

SG-206/206P BOARD (COMPONENT SIDE)

AT-77 board

- S1-1 (WHITE MEMORY)

When set to "OFF (OPEN)", the values of the white balance adjusted at each filter position can be stored in the memory A and B independently. In short, up to 8 adjusted values; 4 for the memory A and 4 for the memory B can be stored. When set to "ON", only 2 adjusted values; one for A and 4 for B can be stored. In this case, the adjusted values will not correspond to the selection of the color temperature conversion filter. According to the selection of WHITE BAL switch (side panel), the white balance value is stored in the memory A and B or read out.

- S1-2
- S1-3

These switches are not used. Be sure to set to OFF.

- S1-4 (MEMORY RESET)

By setting the CAMERA/VTR switch (side panel) to "OFF" and this switch to "ON", the compensation data for black balance and black set stored in the microcomputer can be reset. Factory-setting is "OFF".

RG-31 board

- S1-1 (GENLOCK ON/OFF)

When set to "ON" (right side), the camera signal locks onto the external sync signal which is supplied at the GENLOCK IN connecter of the camera adaptor. Factory-setting is "ON" (right side).

- S1-2 (NAM/Y)

This switch selects a signal to be supplied to the viewfinder. When set to left side, the Y signal is supplied and when set to the right side, the NAMY signal is supplied. Factory-setting is "Y" (left side).

- S1-3 (RET/GL)

This switch selects a signal to be supplied to the viewfinder.
When set to right side, the RET signal is supplied and when set to left side, the external sync signal is supplied. Factory-setting is "RET" (right side).

- S1-4

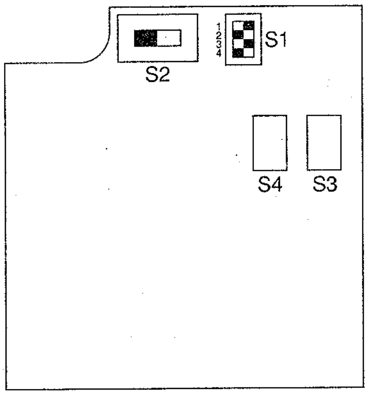
This is not used. Be sure to set to left side.

- S2

This is not used. Be sure to set to left side.

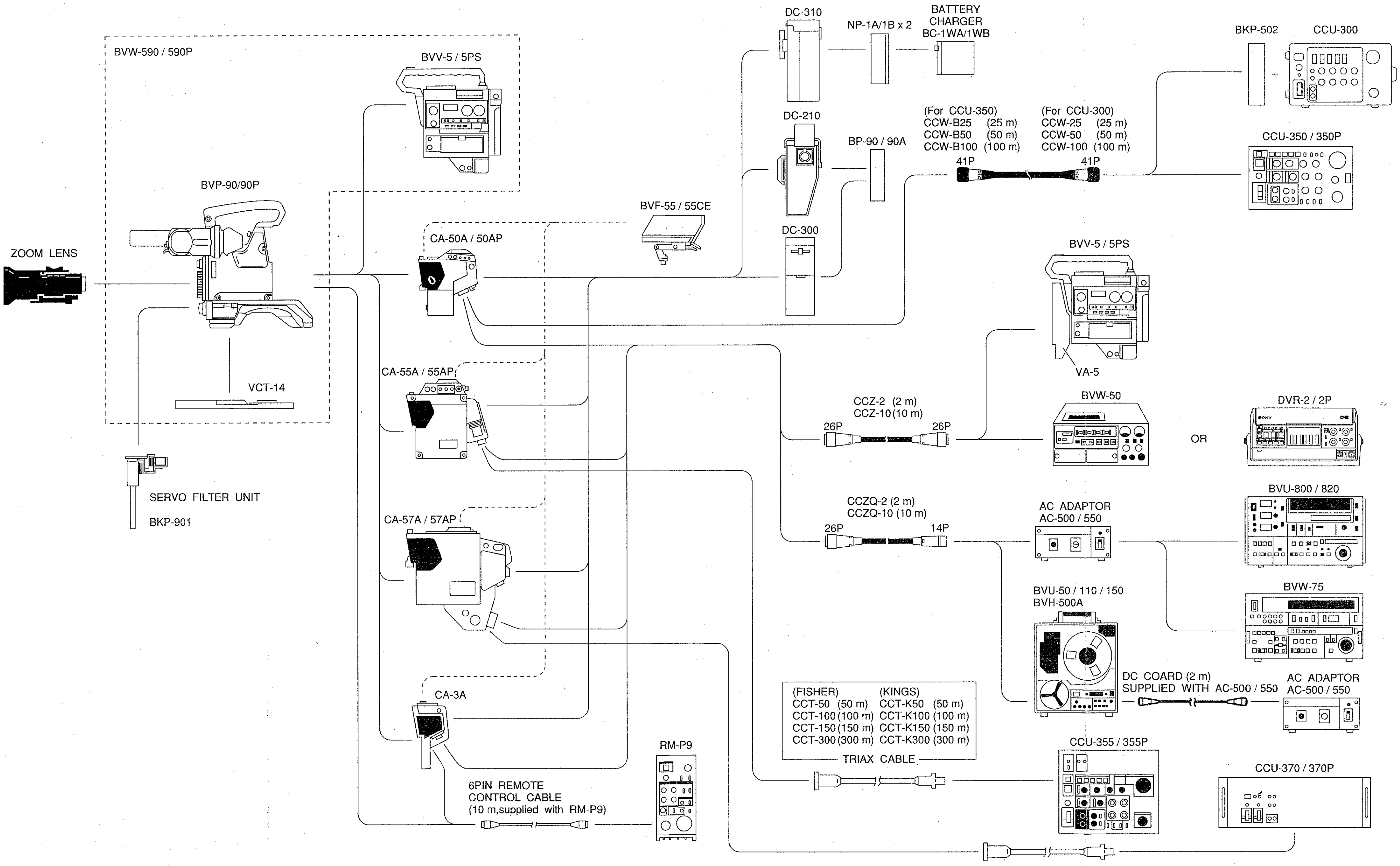
- S3
- S4

The descriptions for these switches are shown in the operation manual.



RG-31 BOARD (SOLDERING SIDE)

1-8. INSTANCE OF SYSTEM CONFIGURATION

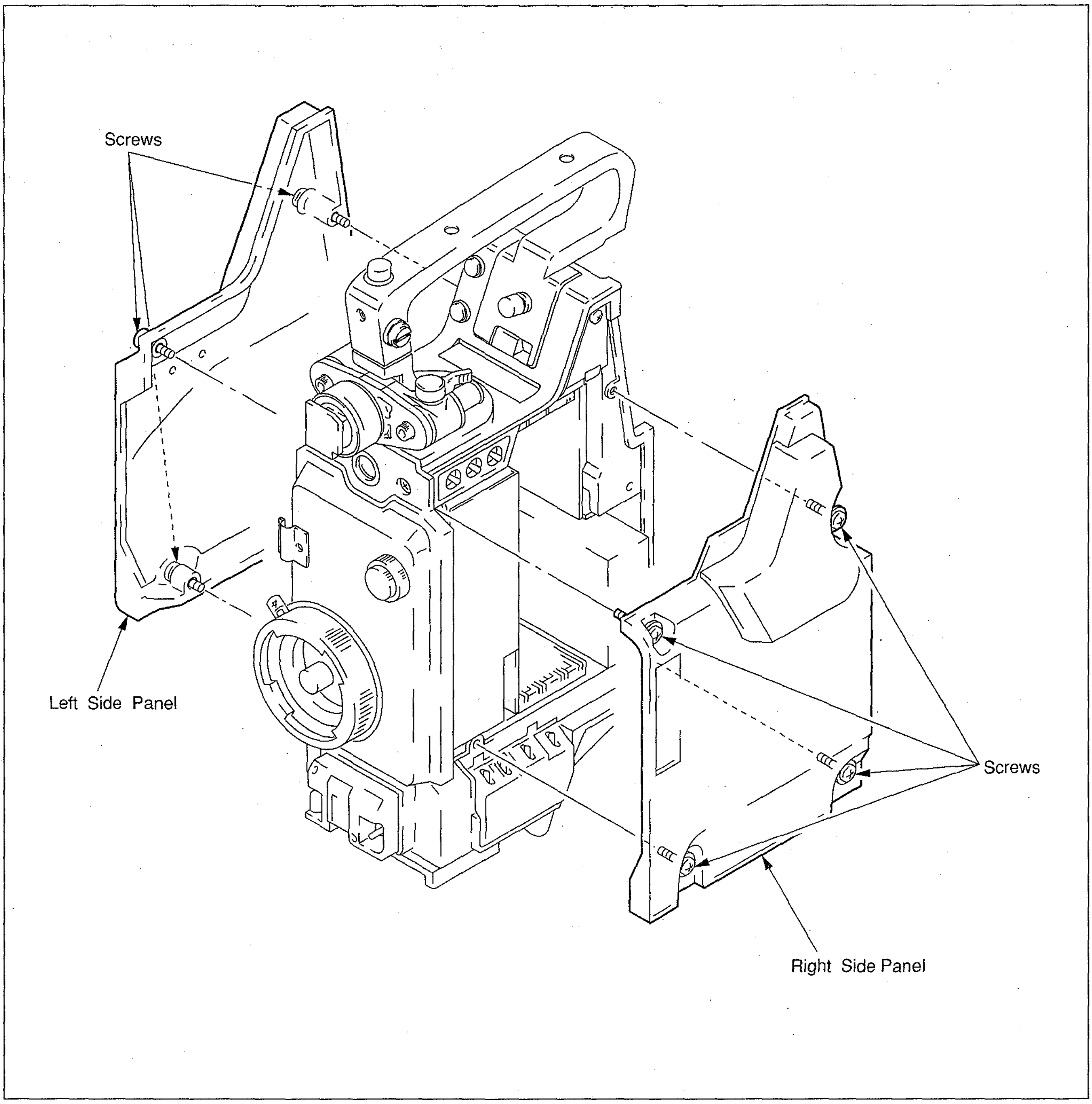


BVW-590 / 590P
BVV-5 / 5PS
BVP-90/90P
ZOOM LENS
VCT-14
SERVO FILTER UNIT
BKP-901
CA-50A / 50AP
CA-55A / 55AP
CA-57A / 57AP
CA-3A
BVF-55 / 55CE
6PIN REMOTE
CONTROL CABLE
(10 m,supplied with RM-P9)
RM-P9
DC-310
NP-1A/1B x 2
BATTERY
CHARGER
BC-1WA/1WB
DC-210
BP-90 / 90A
DC-300
(For CCU-350)
CCW-B25 (25 m)
CCW-B50 (50 m)
CCW-B100 (100 m)
(For CCU-300)
CCW-25 (25 m)
CCW-50 (50 m)
CCW-100 (100 m)
41P
41P
BKP-502
CCU-300
CCU-350 / 350P
BVV-5 / 5PS
VA-5
CCZ-2 (2 m)
CCZ-10 (10 m)
26P
26P
BVW-50
OR
DVR-2 / 2P
CCZQ-2 (2 m)
CCZQ-10 (10 m)
26P
14P
AC ADAPTOR
AC-500 / 550
BVU-800 / 820
BVW-75
BVU-50 / 110 / 150
BVH-500A
DC COARD (2 m)
SUPPLIED WITH AC-500 / 550
AC ADAPTOR
AC-500 / 550
(FISHER)
CCT-50 (50 m)
CCT-100 (100 m)
CCT-150 (150 m)
CCT-300 (300 m)
(KINGS)
CCT-K50 (50 m)
CCT-K100 (100 m)
CCT-K150 (150 m)
CCT-K300 (300 m)
TRIAX CABLE
CCU-355 / 355P
CCU-370 / 370P

SECTION 2
REPLACEMENT OF MAIN PARTS

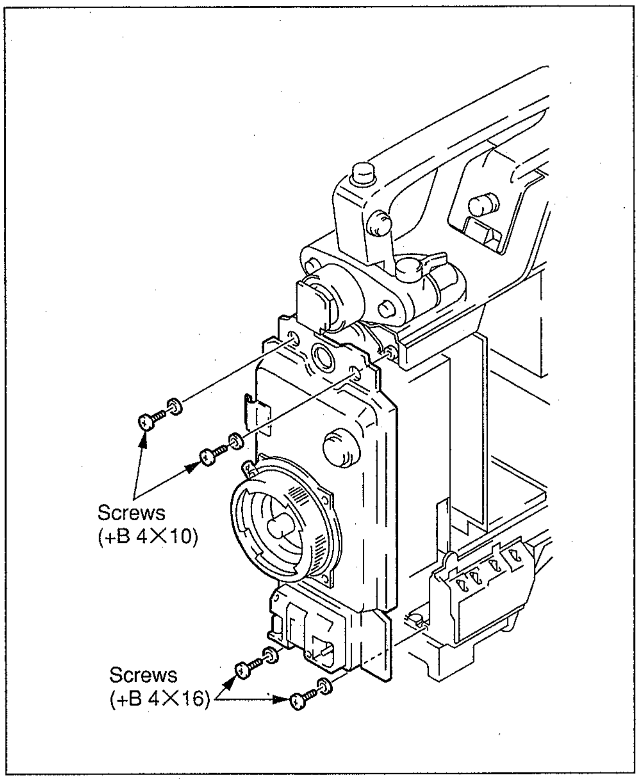
2-1. CABINET REMOVAL

Loosen seven screws to remove the left or right side panel respectively.

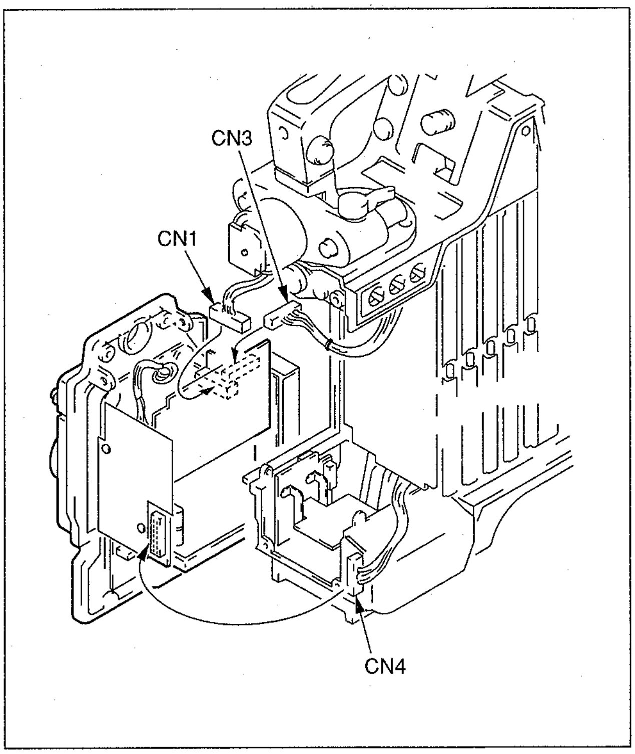

Screws
Left Side Panel
Screws
Right Side Panel

2-2. REPLACEMENT OF CCD UNIT

1. Remove both side panels, referring to Section 2-1. Cabinet Removal.
2. Remove four screws (+B4×10, +B4×16) securing the front panel to the camera body.



3. Disconnect three connectors, CN1 on the PA-156 board, CN3 on the TG-123/123P board and CN4 on the DR-201 board.

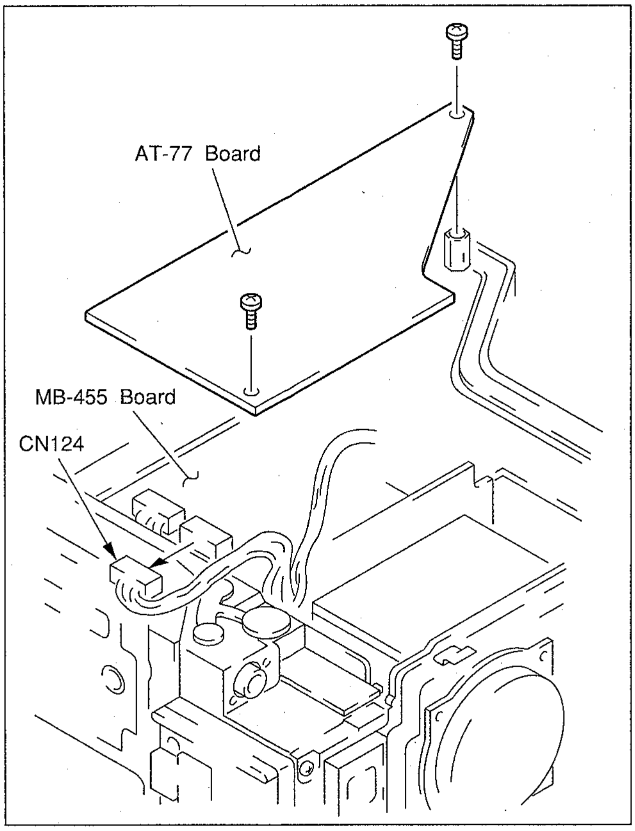


4. Carry out the installation work using the reverse procedure.
5. After replacing the CCD unit, be sure to perform adjustment referring to Section 4. ALIGNMENT.

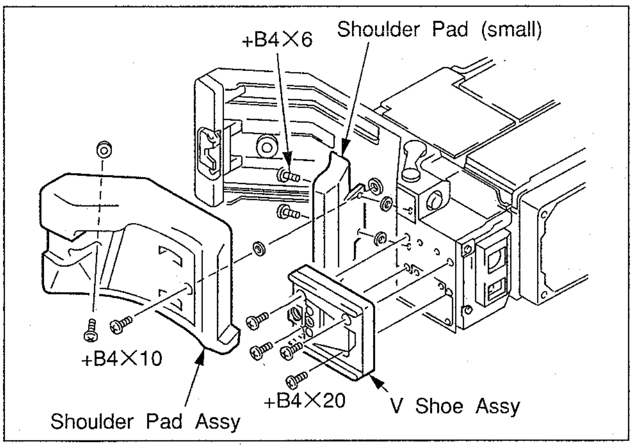
2-3. REPLACEMENT OF CONNECTOR

2-3-1. Replacement of Lens Connector

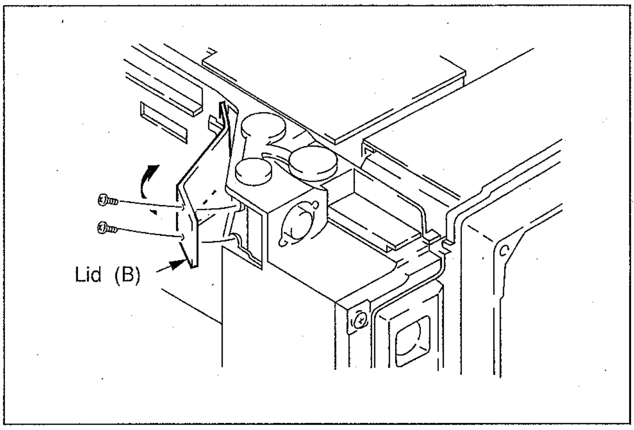
1. Remove the reft side panel, referring to Section 2-1. "Cabinet Removal".
2. Disconnect the AT-77 board on the MB-455 board.
3. Disconnect the CN124 connector on the MB-455 board.


AT-77 Board
MB-455 Board
CN124

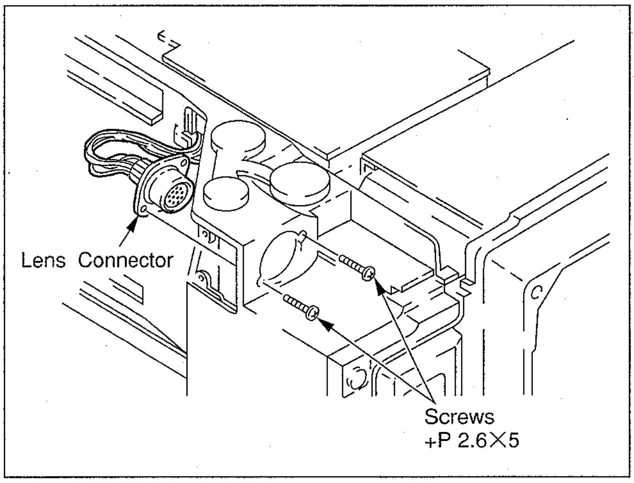
4. Lay the camera body as illustrated. Remove the two screws (+B4x6) securing the SMALL SHOULDER PAD and remove the two screws (+B4x10) securing the SHOULDER PAD ASSY. Remove the four screws (+K4x20) securing the V SHOE (B) ASSY.


+B4X6
Shoulder Pad (small)
+B4X10
Shoulder Pad Assy
+B4X20
V Shoe Assy

5. Remove the two screws (+K2.6x5) and remove the lid (B).



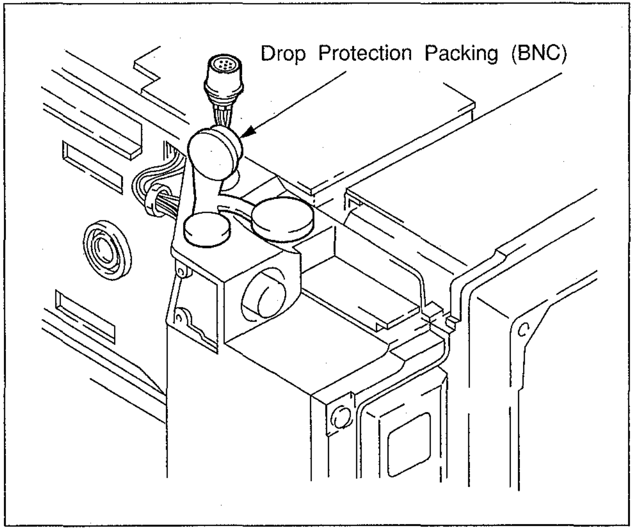
6. Remove the two screws (+P2.6x5) and remove the LENS connector with harness connected.


Lens Connector
Screws
+P 2.6X5

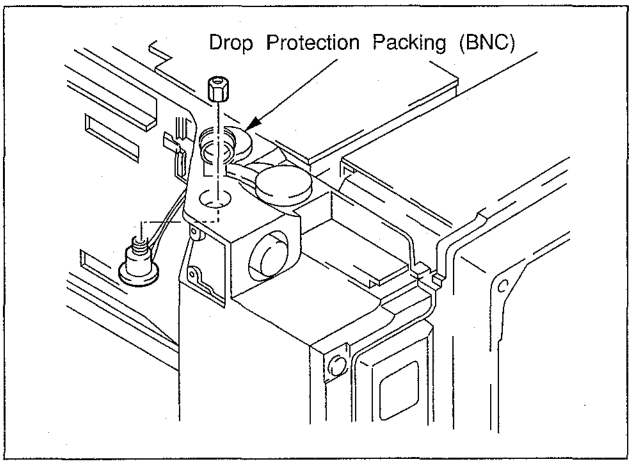
7. Carry out the installation work using the reverse procedure.

2-3-2. Replacement of Remote Connector and PEDESTAL Control

1. Carry out Steps 1 to 5 in Section 2-3-1 "Replacement of LENS Connector".
2. Uncover the drop protection packing (BNC) and remove the REMOTE connector as illustrated.



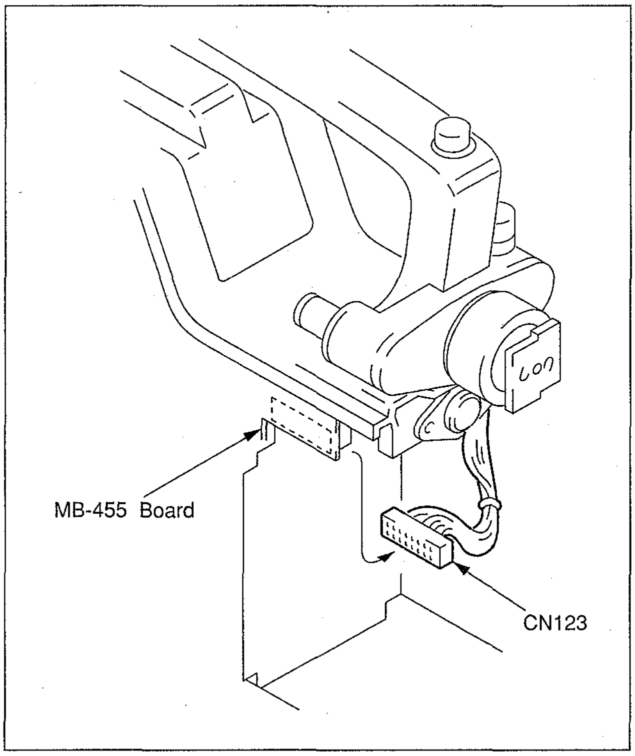
3. Uncover the drop protection packing (BNC) and remove the PEDESTAL control and nut as illustrated.



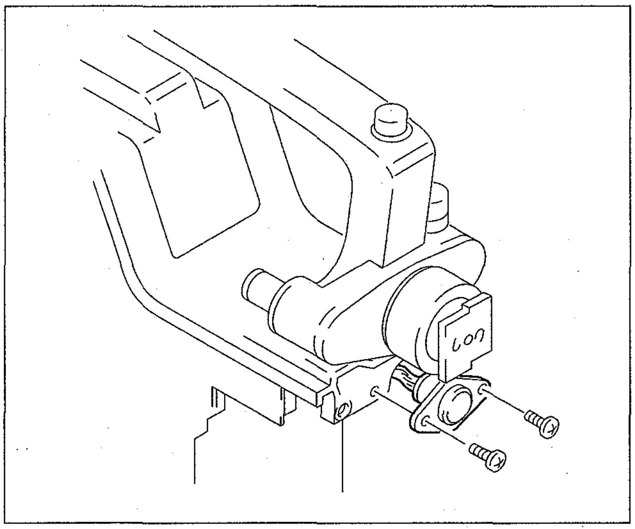
4. Carry out the installation work using the reverse procedure.

2-3-3. Replacement of VF Connector

1. Carry out Steps 1 to 3 in Section 2-2 "REPLACEMENT OF CCD UNIT".
2. Disconnect the connector CN123 on the MB-455 board.



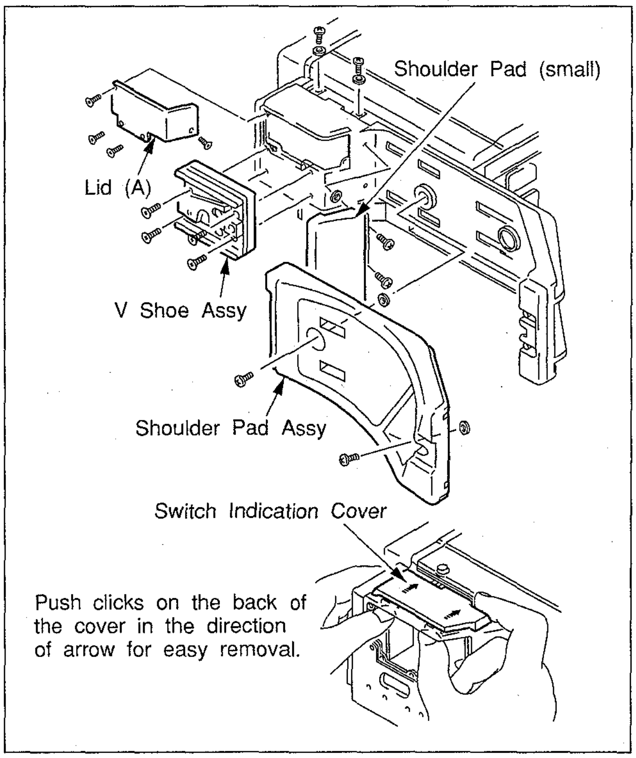
3. Remove two screws securing the VF connector to the unit. Pull out the VF connector with harness connected.



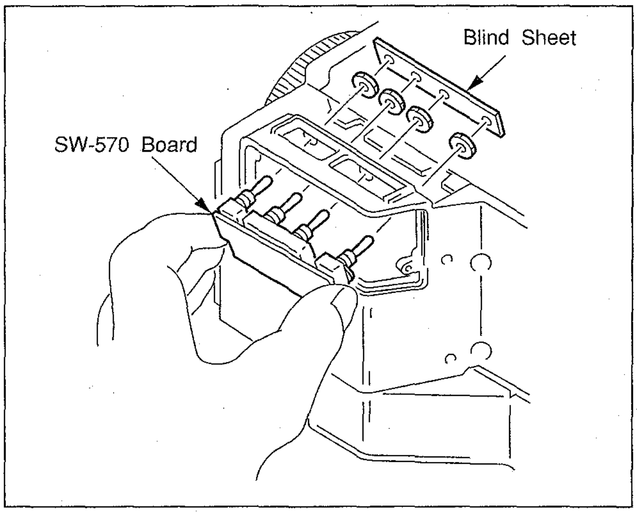
4. Carry out the installation work using the reverse procedure.

2-4. REPLACEMENT OF FUNCTION SWITCH

1. Lay the camera body as illustrated. Remove the shoulderpad ass'y, shoulder pad (small), V shoe ass'y and lid (A).Remove two screws and remove the switch indication cover.


Shoulder Pad (small)
Lid (A)
V Shoe Assy
Shoulder Pad Assy
Switch Indication Cover
Push clicks on the back of the cover in the direction of arrow for easy removal.

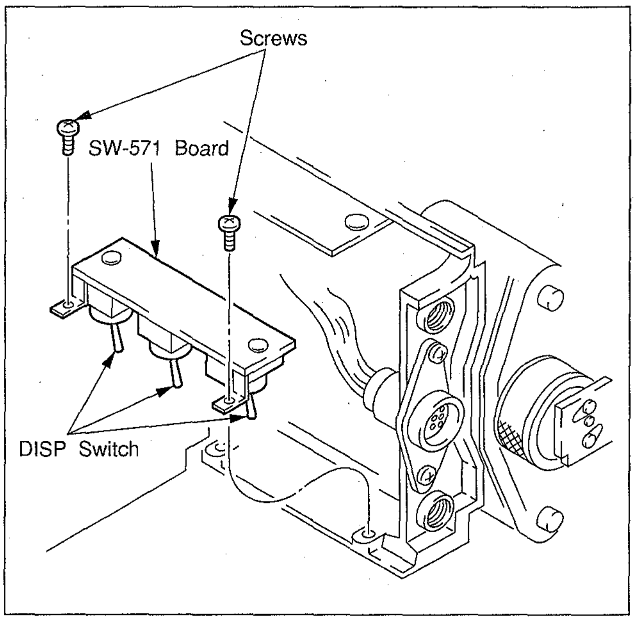
2. Remove the blind sheet and remove the four nuts securing the switches. Pull out the SW-570 board with the switches mounted.


Blind Sheet
SW-570 Board

3. Unsolder a switch to be replaced.
4. Carry out the installation work using the reverse procedure.

2-5. REPLACEMENT OF DISP SWITCH

1. Carry out Steps 1 to 3 in Section 2-2 "REPLACEMENT OF CCD UNIT".
2. Remove the two screws securing the SW-571 board to the unit. Pull out the SW-571 board with the switches mounted.


Screws
SW-571 Board
DISP Switch

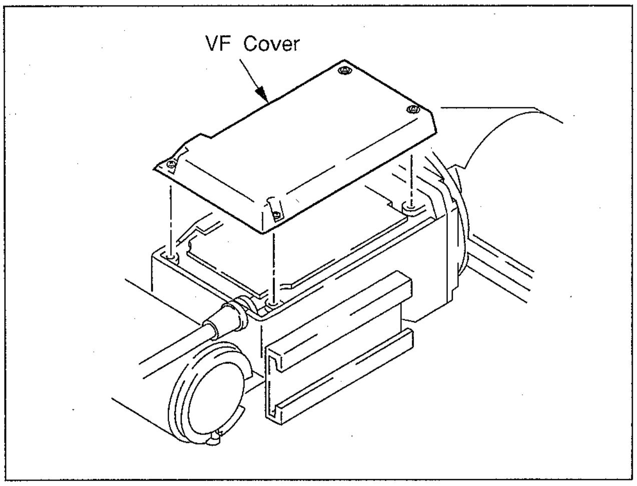
3. Unsolder a switch to be replaced.
4. Carry out the installation work using the reverse procedure.

2-6. VIEWFINDER

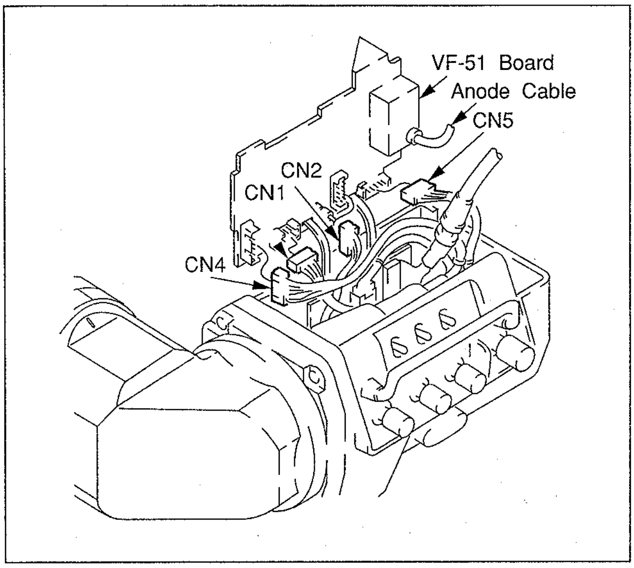
2-6-1. Replacement of CRT

DISASSEMBLE

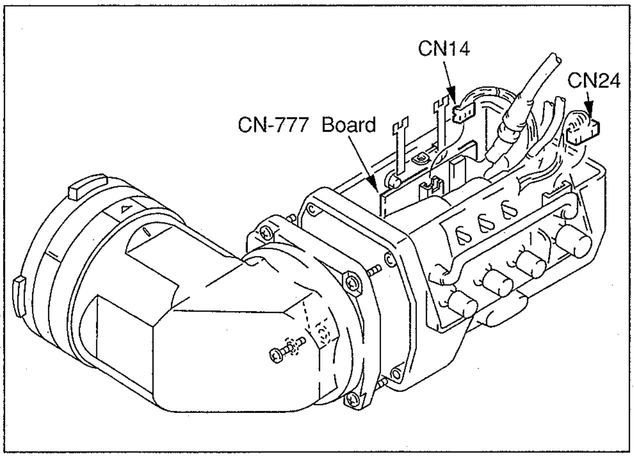
1. Loosen four screws and remove the VF cover.



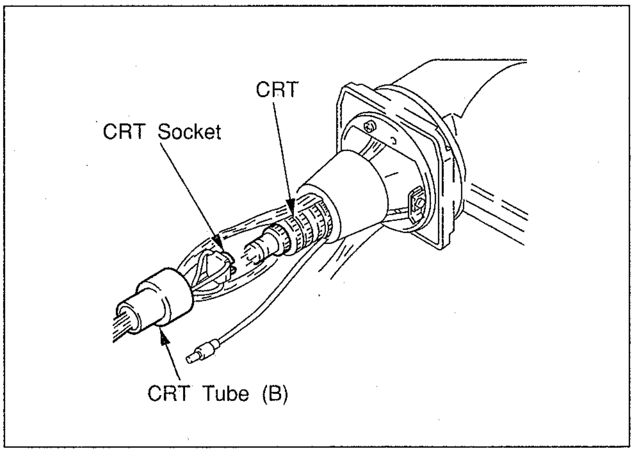
2. Remove one screw and remove the VF-51 board. Disconnect the four connectors CN1, CN2, CN4, CN5 and anode cable on the VF-51 board.


VF-51 Board
Anode Cable
CN5
CN2
CN1
CN4

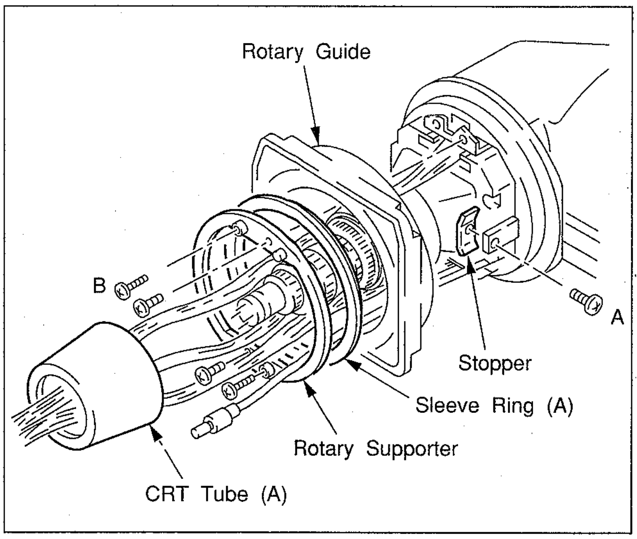
3. Loosen four screws and remove the VF tube. Disconnect the connector CN14 on the CN-777 board. Disconnect the connector CN24 on the VR-151 board.


CN14
CN24
CN-777 Board

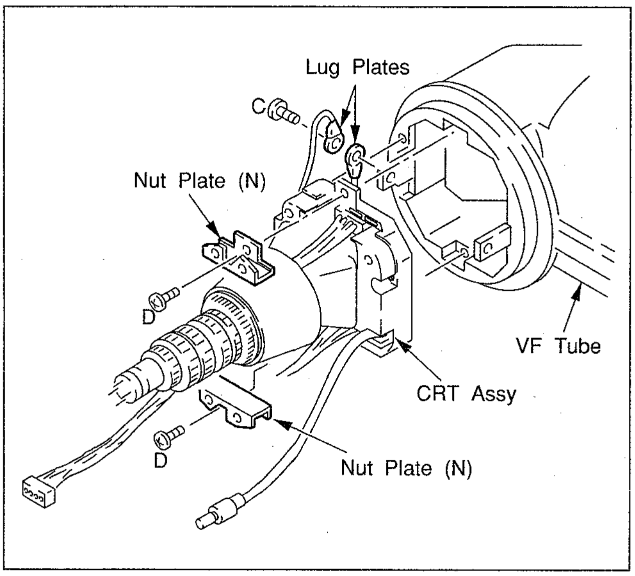
4. Remove the CRT tube (B). Disconnect the CRT socket from the CRT.


CRT
CRT Socket
CRT Tube (B)

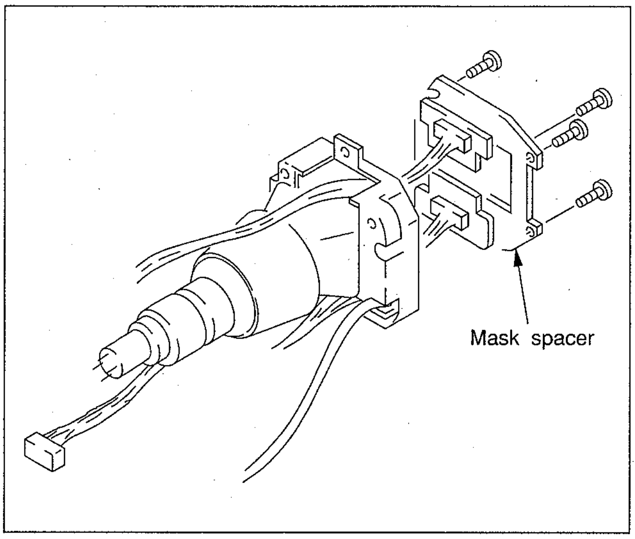
5. Remove the CRT tube (A).
   Remove the screw (A) and remove the stopper. Remove four screws (B) and remove the rotary supporter, sleeve ring (A), VF rotary guide.


Rotary Guide
B
A
Stopper
Sleeve Ring (A)
Rotary Supporter
CRT Tube (A)

6. Remove the screw (C) and remove the two lug plates. Remove the screw (D) and remove the nut plate. Remove the CRT ASSY from the VF tube.


Lug Plates
C
Nut Plate (N)
D
VF Tube
CRT Assy
D
Nut Plate (N)

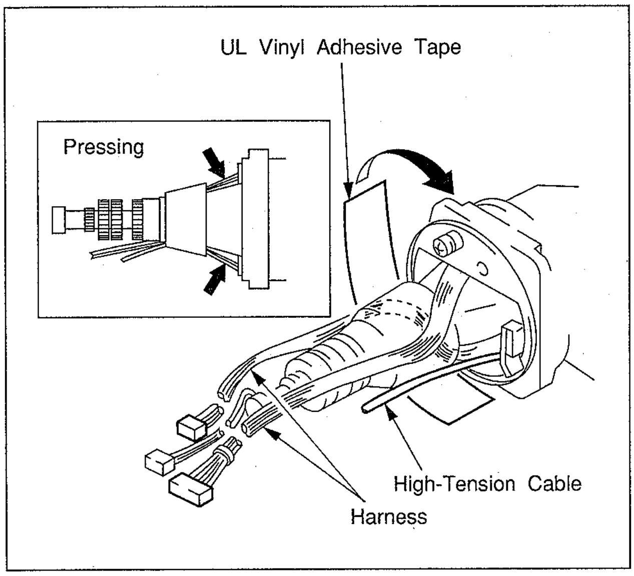
7. Remove the four screws and remove the mask spacer.


Mask spacer

ASSEMBLE

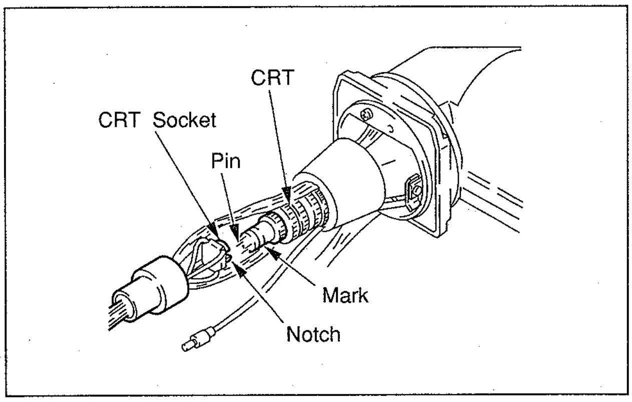
Note: Assemble the viewfinder, taking care of harness arrangement.

8. Assemble the viewfinder by reversing the procedures 5 to 7.
   Put all wire harnesses from the LP boards together and fasten them with UL vinyl adhesive tape while pressing them in the direction shown by the arrows so that they are not laid on one another.
   The high-tension cable shall be kept straight.
   The tied harnesses should be pushed against the CRT so that they do not bulge out.

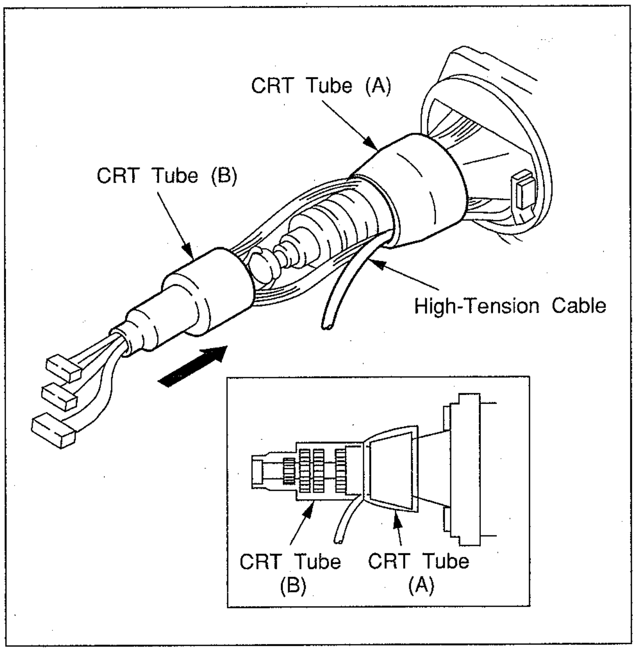

UL Vinyl Adhesive Tape
Pressing
High-Tension Cable
Harness

9. Connect the CRT socket to the CRT.

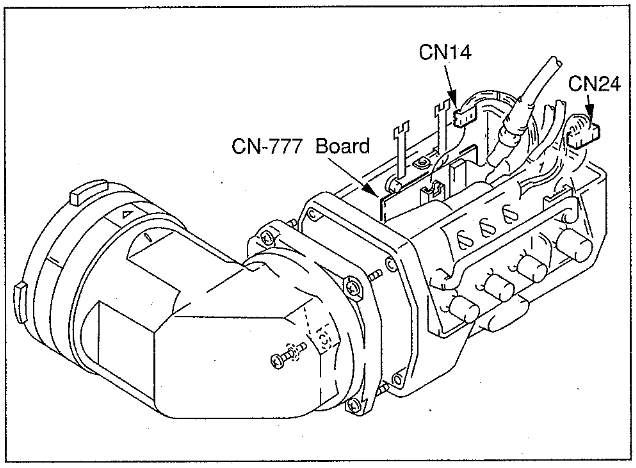
Note: When connecting the CRT socket to the CRT, match a mark on the CRT with a notch of the CRT socket. Be careful not to bend pins of the CRT while inserting.


CRT
CRT Socket
Pin
Mark
Notch

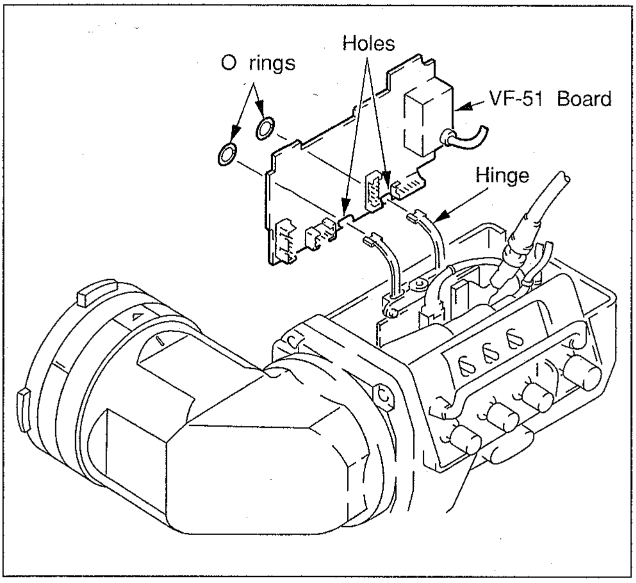
10. Cover the harnesses with CRT tubes (A) and (B) as shown in the figure. Care must be taken so that the harnesses are not slack within the tubes.


CRT Tube (A)
CRT Tube (B)
High-Tension Cable
CRT Tube (B)
CRT Tube (A)

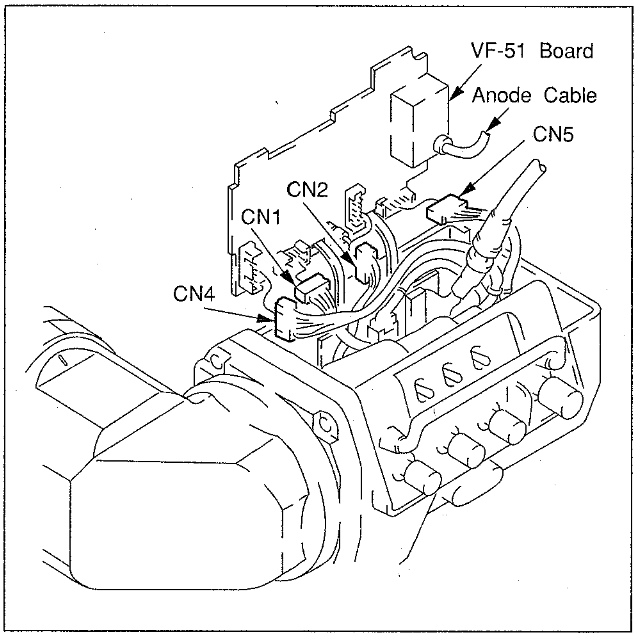
11. Install the VF tube, where the CRT is incorporated, into the VF body so that the harnesses are not placed between the tube and the body.
    Connect the CN24 to the VR-151 board.
    Connect the CN14 to the CN-777 board.


CN14
CN24
CN-777 Board

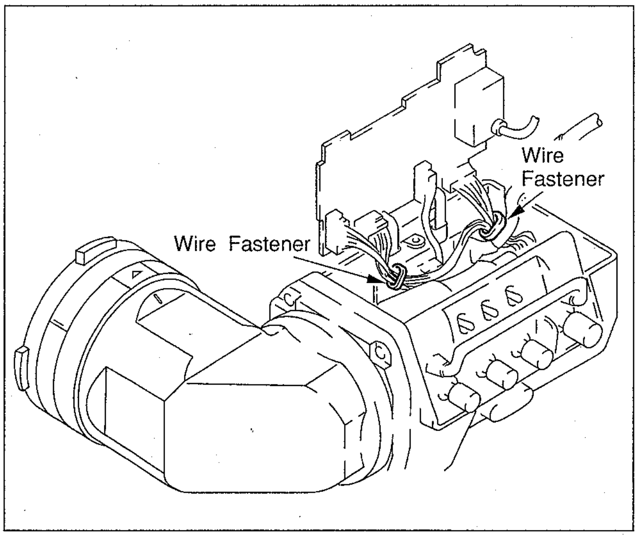
12. Insert the hinge into holes of the VF-51 board and secure it with the O rings.


Holes
O rings
VF-51 Board
Hinge

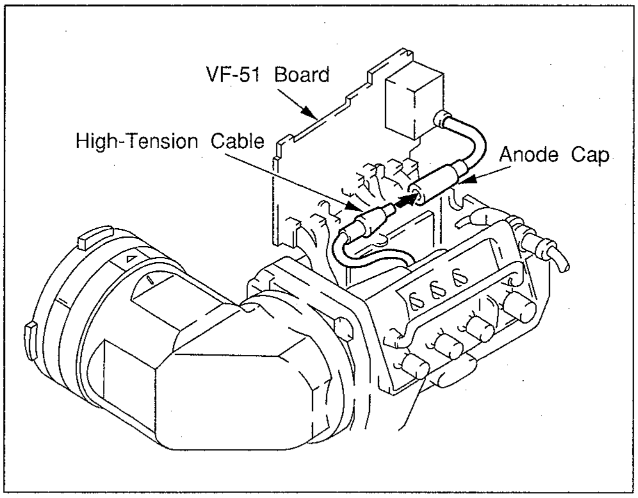
13. Connect CN1, CN2, CN4, and CN5 to the VF-51 board.


VF-51 Board
Anode Cable
CN5
CN2
CN1
CN4

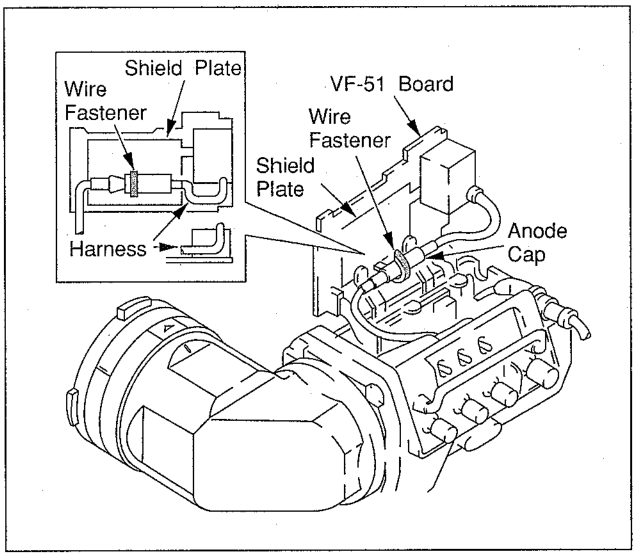
14. Clamp the harnesses with the wire fastener.


Wire Fastener
Wire Fastener

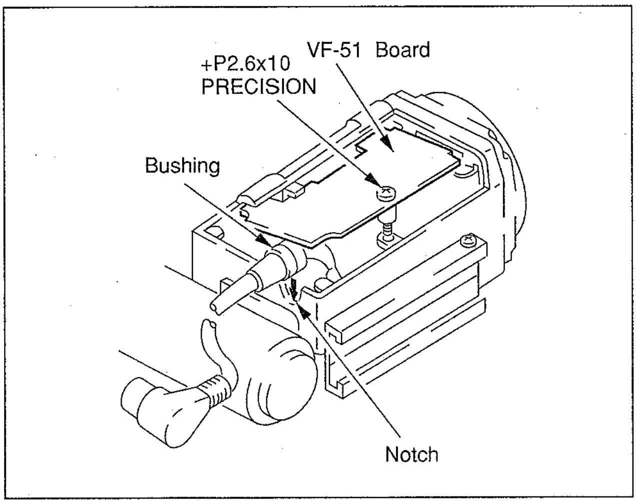
15. Insert the high-tension cable from the CRT into the anode cap of the VF-51 board until it locks.


VF-51 Board
High-Tension Cable
Anode Cap

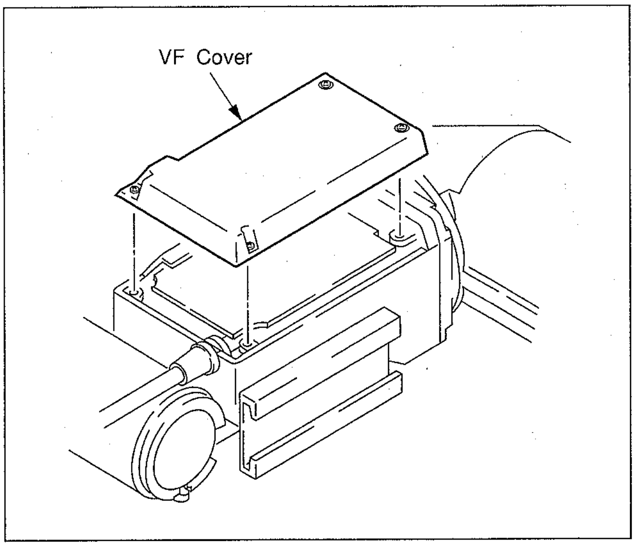
16. Clamp the anode cap in the place shown in the figure with the wire fastener and position the harness at the side of thetransformer.


Shield Plate
Wire Fastener
Harness
VF-51 Board
Wire Fastener
Shield Plate
Anode Cap

17. Insert the rubber bushing of the VF cable into the notch of the VF body so it matches the shape of the notch and close the VF-51 board.
Lastly, fasten the VF-51 board with the supplied precision screw (+P2.6×10), to the board mounting metal.

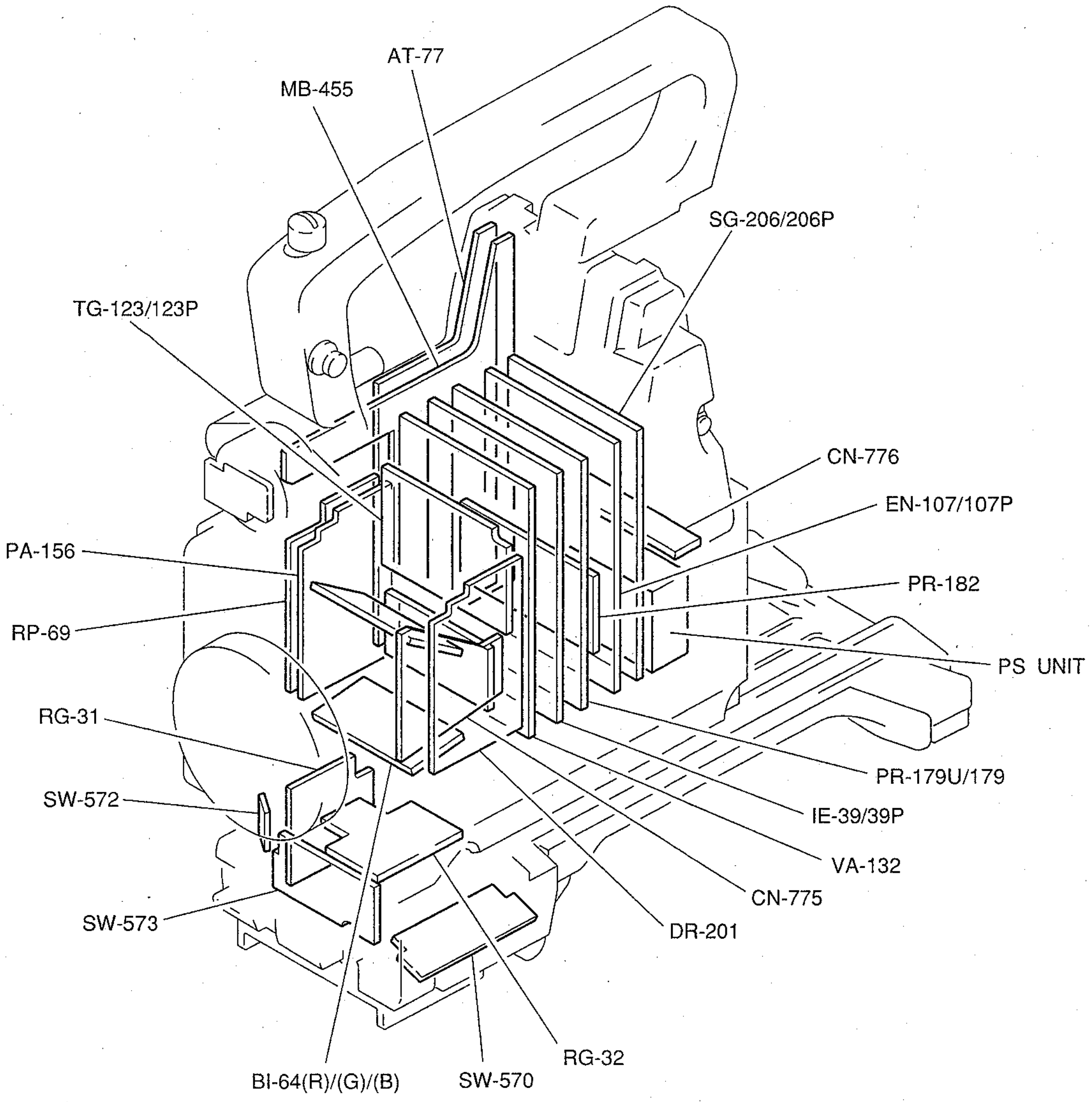

+P2.6x10 PRECISION
VF-51 Board
Bushing
Notch

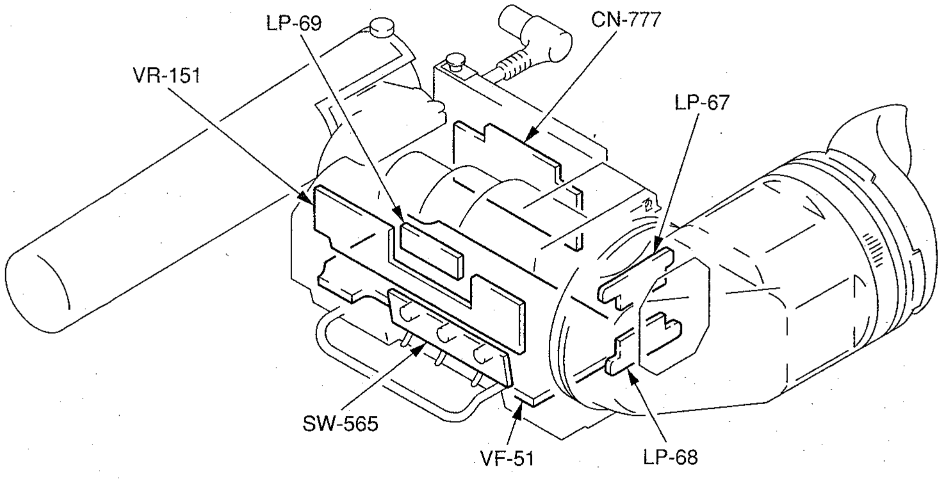
18. Install the VF cover.



SECTION 3
SERVICE INFORMATION

3-1. MAIN PARTS LAYOUT


AT-77
MB-455
SG-206/206P
TG-123/123P
CN-776
EN-107/107P
PA-156
PR-182
RP-69
PS UNIT
RG-31
PR-179U/179
SW-572
IE-39/39P
VA-132
SW-573
CN-775
DR-201
RG-32
BI-64(R)/(G)/(B)
SW-570


LP-69
CN-777
VR-151
LP-67
SW-565
VF-51
LP-68

3-2. CIRCUIT DESCRIPTION

CCD CONTROL SYSTEM (TG-123/123P, DR-201, BI-64 (R)/(G)/(B), PA-156 boards)

- TG-123/123P board
  It sends the pulse for driving the CCD to DR-201 board and the pulse for sampling the video signal output from the CCD to PA-156 board. Driving pulse synchronizes with the synchronizing signal sent from SG-206/206P board.

- DR-201 board
  It converts the driving pulse sent from TG-123/123P board so as to drive the CCD directly. Converted pulse is sent to BI-64 (R)/(G)/(B) board and transmitted to the CCD.

- BI-64 (R)/(G)/(B) board
  It mounts the CCD. Driving pulse and DC voltage for control are added to the CCD on the board.
  The video signal output from the CCD is sent through the emitter follower to PA-156 board.

- PA-156 board
  It eliminates the pulse component of the video signal sent from BI-64 (R)/(G)/(B) board.
  Then the signal processings such as the black level fixing and amplification by preamplifier are performed on the board, then the video signal is sent to VA-132 board.

VIDEO SIGNAL SYSTEM (VA-132, IE-39/39P, PR-179/179U, EN-107/107P boards)

- VA-132 board
  It amplifies the video signal sent from PA-156 board and processes the black shading correction, gain-up control, flare compensation, blanking cleaning and white shading correction. It also selects the video signal or the TEST SAW signal.

- IE-39/39P board
  It generates the detail signal obtained from G and R video signal so as to improve resolution. The detail signal is added to R, G and B video signals.
  It also sends the aperture signal for knee aperture to the PR-179/179U board.
  G video signal is delayed by 1H, then sent to PR-179/179U board.

- PR-179/179U/182 board
  The masking signal and knee aperture signal are added to R, G and B video signals respectively and the pedestal control, knee correction, white clipping and gamma correction are performed on the board.
  Then the video signal is sent to EN-107/107P board.

- EN-107/107P board
  It generates the luminance (Y) signal, color difference (B-Y, R-Y) signals and composite video (VBS) signal obtained from R, G and B video signals which are supplied from PR-179/179U board. It also supplies the SMPTE: NTSC (EBU: PAL) color-bar signals.

POWER SUPPLY SYSTEM (PS UNIT)

- PS UNIT
  Externally supplied unregulated DC power is sent to the switching regulator, DC to DC converter and series regulator to generate voltages of +8.8 V dc, +5 V dc and -2.5 V dc for the respective boards.
  It also supplies voltages for the VIEWFINDER and for CCD control.

SYNCHRONIZING SIGNAL SYSTEM (SG-206/206P board)

- SG-206/206P board
  It generates various synchronizing signals.
  It detects the genlock signal automatically and synchronizes with it.

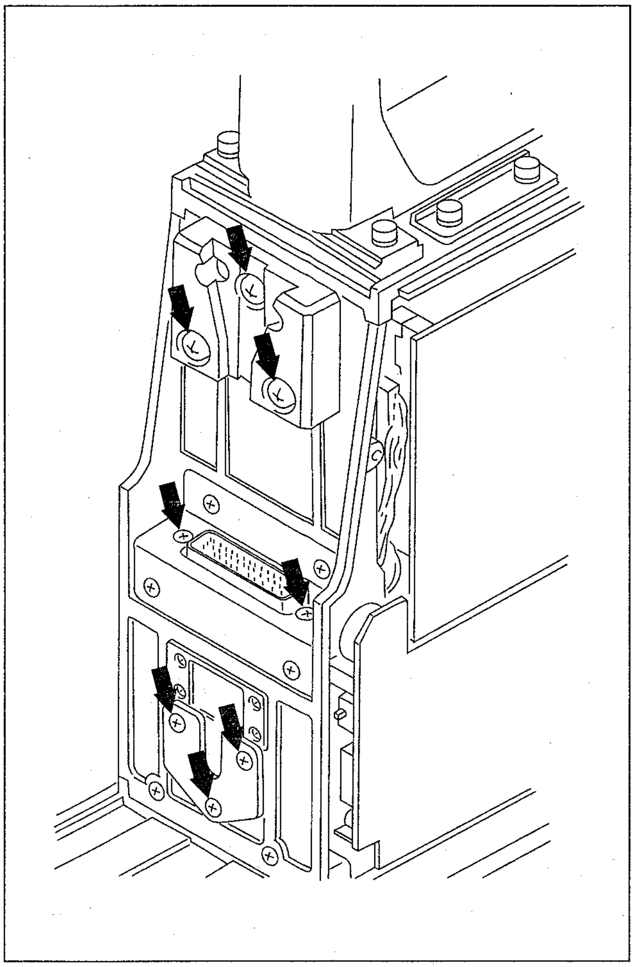
AUTOMATIC CONTROL SYSTEM (AT-77 board)

- AT-77 board
  Microcomputer unit on AT-77 board sends to the control signal and compensation signal to appropriate boards in accordance with the selection of function switches.
  It also detects the internal temperature, position of color temperature conversion fillter, PEDESTAL control and video level automatically, then compensates the video signals and displays various warnings.

3-3. SERVICING PRECAUTION

3-3-1. Precaution on Replacement of VTR Connector (50P Connector)

The VTR connector (50 pin connector) is attached using a high-precision special tool (CV positioning) so as to keep the accurate positioning relation with VTR mount (C shoe) and to dock with any of BVV-5/5PS.
Avoid to loosen or remove the screws for 50P connector, C SHOE and stopper (in all, eight screws) shown in the figure.
It is necessary to adjust using a jig, when the above parts are replaced.
For details, refer to "BETACAM CAMERA manual — Replacement of 50-pin connector —" prepared by Sony Corporation.
Also, for replacement of the VTR connector (50-pin connector), contact your Sony dealer.



3-3-2. Warning of CCD Image Sensor Replacement

The BI-64 (R)/(G)/(B) board on which the CCD is mounted had better not be removed.
When removing it, the CCD is sometimes broken by the static electricity.
If the CCD is broken, the whole CCD unit must be replaced.

3-3-3. Note in the use of CA-50/50P

When using the BVP-90/90P which is docked with the CA-50/50P, it is necessary to replace the IF-192 board of the CA-50/50P with the IF-422 board (Sony Parts No. A-8271-836-A).
For details, consult your Sony dealer.

3-3-4. PROM, PLD

The IC of PROM or PLD on the PC board has a suffix to its original designation. This suffix may change according to improvement of IC. Never use an IC having no suffix to its original designation, because its memory has not been programmed. Each IC is mounted to the PC board via socket.

3-3-5. Precaution of Replacement Parts

1. Safety Related ComponentsWarning
   Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list arecritical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this-manual or in service manual supplements published by Sony.

2. Standardization of Parts
   Replace Parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."
   - This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present."
   - Regarding engineering parts and diagrams changes in our engineering department, refer Sony service bulletins and service manual supplements.

3. Stocked of Parts
   The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be proceed, but allow for additional delivery time.

4. Units of Capacitors, Inductors, and Resistors
   The following units are omitted in the schematic diagrams exploded views, and electrical part lists unless otherwise specified;
   Capacitor : µF
   Inductor : µH
   Resistor : Ω

3-4. TOOLS AND JIGS

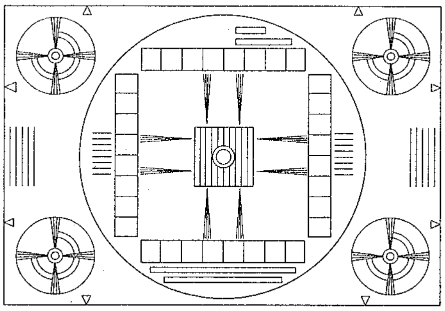
Part No.	Description
A-8276-439-A	Extension board "EX-389" (supplied)
J-6026-100-A	Resolution chart
J-6026-110-A	Burst chart
J-6026-130-B	Gray-scale chart
J-6029-140-B	Pattern box "PTB-500"
J-6196-080-B	DC Power cord
7-700-733-01	Adjusting screwdriver (1.5 mm/4 mm)

SECTION 4
ALIGNMENT

4-1. PREPARATION

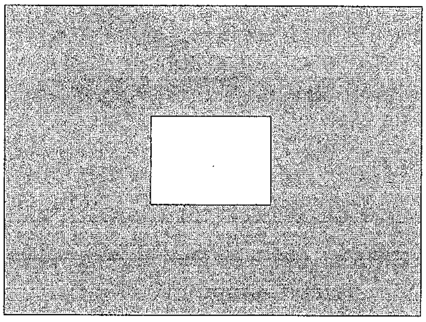
4-1-1. Adjustment Fixtures and Equipment

J-6026-100-A Resolution Chart



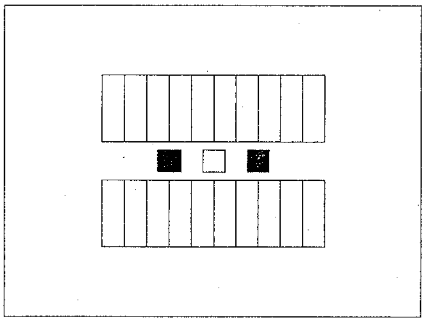
White Window Chart

Make a hole in the center of black paper as shown in the figure.



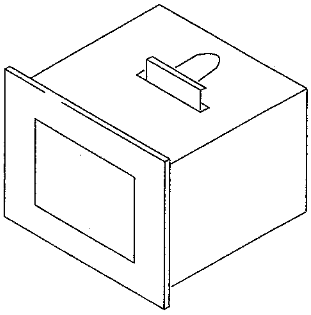
J-6026-130-B Gray Scale Chart

Stick the velvet (black) at the both sides of white pattern in the center to avoid the light leakage.

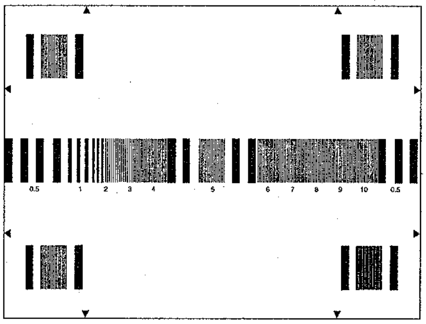


J-6029-140-B Pattern Box PTB-500

PTB-220 is also available.

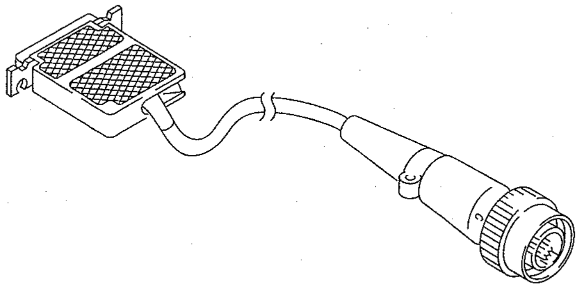


J-6026-110-A Burst Chart

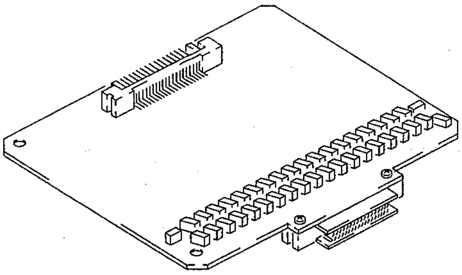


J-6196-080-B DC Power Cord

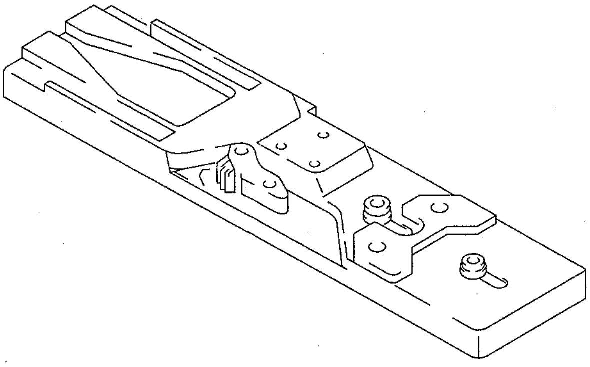
Necessary without CA-50P/3A



A-8276-439-A	Extension board (EX-389)



Tripod Adaptor (VCT-14)



- Camera Adaptor (Sony CA-3A/50P/51P/55P/57P; need one of them)
- AC Adaptor (Sony AC-500CE or CMA-8CE/8ACE)
- CCZ cable: 5m (CCZ-A5 cable)
- Cable Assy (29 PIN): P/N; 1-575-041-13 (Supplied accessory)

Measuring Instruments

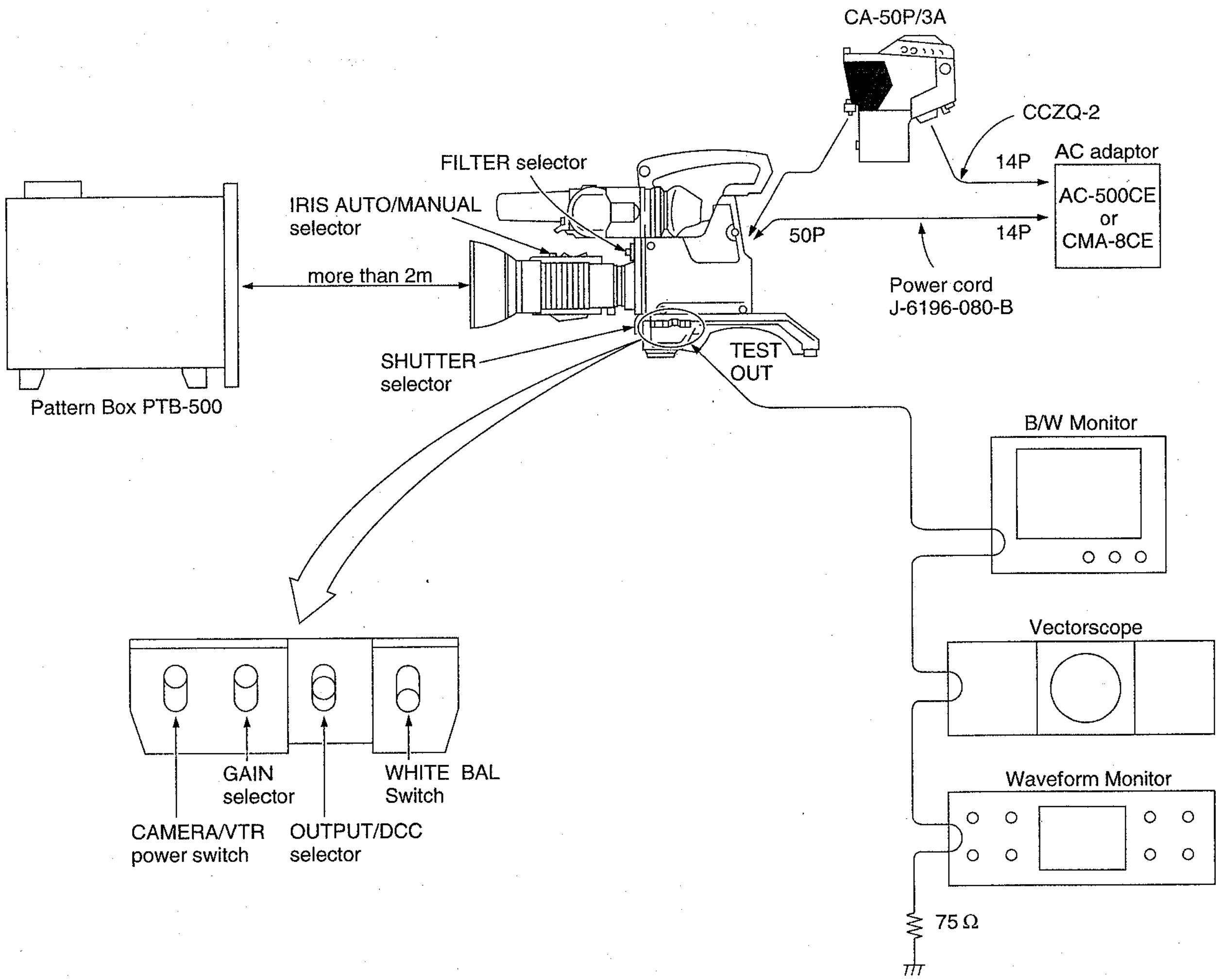
- Oscilloscope
- Waveform Monitor
- Vectorscope
- SC-H Phase Measuring Instrument (Tektronix 1751 or equivalent)
- Frequency Counter
- Digital Voltmeter
- B/W Monitor (Horizontal resolution; more than 800 TV lines)
- Test signal generator (used signal; sweep signal with sync)
- Audio signal generator.

NOTE ON THE REPLACEMENT OF THE CCD UNIT

When replacing the CCD unit, perform the following adjustments.

STEP 3-1. DC Set adjustment
STEP 3-2. Lens Shading adjustment
STEP 3-3. VA Gain adjustment
STEP 3-4. Pre-Black Set adjustment
STEP 3-7. Modulator Balance adjustment
STEP 3-8. Black Shading adjustment
STEP 3-9. White Shading adjustment
STEP 3-15. Black-set and Pedestal adjustment
STEP 3-16. Flare adjustment

4-1-2. Connection and Initial Setting


CA-50P/3A
CCZQ-2
14P
AC adaptor
AC-500CE
or
CMA-8CE
FILTER selector
IRIS AUTO/MANUAL
selector
50P
14P
Power cord
J-6196-080-B
more than 2m
SHUTTER
selector
TEST
OUT
Pattern Box PTB-500
B/W Monitor
Vectorscope
Waveform Monitor
75 Ω
GAIN
selector
WHITE BAL
Switch
CAMERA/VTR
power switch
OUTPUT/DCC
selector

4-1-3. Precaution on Adjustments

1. Boards Extension
   When IE-39P, VA-132, PR-179 and EN-107P boards are extended or returned be sure to set the CAMERA/VTR power switch ON/SAVE position.

2. Initial setting of each switch
   If the setting of the GAIN switch is changed from that at shipment, return it to the setting at shipment by referring to the Instruction Manual.

   [Side Panel]
   - CAMERA/VTR power switch → "ON/STBY"
   - GAIN switch → "L (0 dB)"
   - OUTPUT/DCC switch → "CAM/OFF"
   - WHITE BAL switch → "PRESET"
   - FILTER selector → "1, B"
   - IRIS AUTO/MANU selector → "MANU"
   - IRIS control → "CLOSE"
   - SHUTTER switch → "OFF"
   - TEST OUT switch → "ENC"
   - VF DISP switch → "OFF"

   [On the board]
   IE-39P board
   - S1 (DTL) → "ON"
   - S2 (APT) → "ON"
   - S3 (FLD/FLM) → "FLD"

   PR-179U board
   - S1 (MASKING) → "OFF"
   - S2 (γ ON/OFF) → "ON"
   - S3 (WHT CLIP) → "ON"

   AT-77 board
   - S1 → ALL "OFF"

   RG-31P board
   - S1 → 1. ON
     2. OFF
     3. ON
     4. OFF
   - S2 (G/-G) → "G"

3. Warm up
   Before adjustments, set the CAMERA/VTR power switch to "ON/STBY" position and allow for 10 minute warm-up time.

4. Procedure of Resetting Compensation Data
   Before step 3-15. Black Set Pedestal Adjustment and step 3-16. Flare Adjustment are carried out, the compensation data in the microprocessor must be reset in following order.

   ① S1-4/AT-77 board → 「ON」
   ② CAMERA/VTR power switch (side panel) → 「OFF/SAVE」
   Keep this switch position for ten seconds.
   ③ S1-4/AT-77 board → 「OFF」

5. PR-179U board adjustment
   - ⊘RV21 through ⊘RV25 are for the masking adjustment. Use these controls to adjust the color reproduction
     Note: Set S1/PR-179U to "ON" when adjusting ⊘RV21 through ⊘RV25.
   - ⊘RV37: Fully counterclockwise ↺

6. Do not attempt to reset the following controls because their adjustments are very critical and delicate in the field.

   OPTICAL HEAD
   - PA-156 board
     ⊘CV1, CV2, CV3
     ⊘RV1, RV2, RV3, RV5
     When replacing parts on the PA board, pay attention not to stress to PA board.
   - DR-201 board
     ⊘RV1, RV2, RV3
   - TG-123P board
     ⊘RV1

   CAMERA BODY
   - VA-132 board
     ⊘CV1, CV2, CV3
   - IE-39P board
     ⊘CV1, CV2, CV3, ⊘RV1
   - PR-179 board
     ⊘CV1, CV2, CV3
   - EN-107P board
     ⊘CV1

7. Earthing point
   Use the GND connector on the extension board, unless otherwise specified.

8. Confirm that the displays of the MASTER GAIN on the menu screen are set as shown below.
   LOW: 0 dB
   MID: 9 dB
   HIGH: 18 dB
   If not, set the displays of the MASTER GAIN as shown above. (Refer to "4-6. Setting the Selectable Gain Values" in the BVP-90 Operation Manual.)

4-2. OVERALL ADJUSTMENT

STEP 1. POWER SUPPLY SYSTEM

STEP 2. SYNCHRONIZING SIGNAL SYSTEM

STEP 2-1. Subcarrier Frequency adjustment
STEP 2-2. SYNC Phase adjustment
STEP 2-3. Burst Flag adjustment
STEP 2-4. H BLKG width adjustment
STEP 2-5. INT SC phase adjustment

STEP 3. VIDEO SIGNAL SYSTEM

STEP 3-1. DC Set adjustment
STEP 3-2. Lens Shading adjustment
STEP 3-3. VA Gain adjustment
STEP 3-4. Pre-Black Set adjustment
STEP 3-5. Test Signal Level adjustment
STEP 3-6. Pre-Knee adjustment
STEP 3-7. Modulator Balance adjustment
STEP 3-8. Black Shading adjustment
STEP 3-9. White Shading adjustment
STEP 3-10. 1H, R, G, B Level adjustment
STEP 3-11. PR IN Gain adjustment
STEP 3-12. Pre-Pedestal level and PR OUT Gain adjustment
STEP 3-13. Gamma Balance adjustment
STEP 3-14. Carrier Balance adjustment
STEP 3-15. Black-set and Pedestal adjustment
STEP 3-16. Flare adjustment
STEP 3-17. RGB Video Level adjustment
STEP 3-18. Color-Bar adjustment
STEP 3-19. EN Y Level adjustment
STEP 3-20. VU Gain adjustment
STEP 3-21. Burst adjustment
STEP 3-22. VTR Y/Y SYNC Lelvel adjustment
STEP 3-23. VTR R-Y/B-Y Level adjustment
STEP 3-24. Zebra Level adjustment
STEP 3-25. Gamma Correction adjustment
STEP 3-26. Manual Knee adjustment
STEP 3-27. Automatic Knee and White Clip adjustment

STEP 4. IMAGE ENHANCER SYSTEM

STEP 4-1. V DTL Null adjustment
STEP 4-2. DTL Black Clip adjustment
STEP 4-3. DTL Alias adjustment
STEP 4-4. H DTL Null adjustment
STEP 4-5. Black Balance adjustment
STEP 4-6. DTL Clip adjustment
STEP 4-7. Crispening adjustment
STEP 4-8. Level Dependent adjustment
STEP 4-9. Aperture Alias adjustment
STEP 4-10. Aperture Null adjustment
STEP 4-11. Aperture adjustment
STEP 4-12. H/V Ratio adjustment
STEP 4-13. Detail Level adjustment
STEP 4-14. Knee Aperture adjustment

STEP 5. POWER SAVE ADJUSTMENT

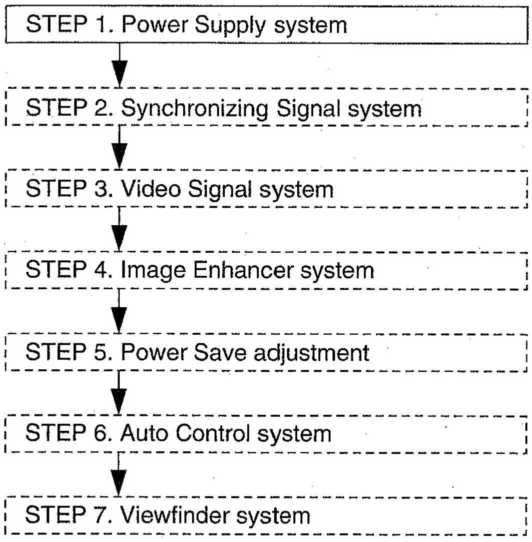
STEP 6. AUTO CONTROL SYSTEM

STEP 6-1. Iris Weighting adjustment
STEP 6-2. Auto Iris adjustment
STEP 6-3. Character Size adjustment
STEP 6-4. Audio Level adjustment

STEP 7. VIEWFINDER SYSTEM

STEP 7-1. Preparation for Viewfinder system adjustment
STEP 7-2. Vertical Hold adjustment
STEP 7-3. Horizontal Hold adjustment
STEP 7-4. DC Balance adjustment
STEP 7-5. Bright Set adjustment
STEP 7-6. Focus adjustment
STEP 7-7. Picture Frame adjustment
STEP 7-8. Peaking Level adjustment

STEP 1. POWER SUPPLY SYSTEM


STEP 1. Power Supply system
STEP 2. Synchronizing Signal system
STEP 3. Video Signal system
STEP 4. Image Enhancer system
STEP 5. Power Save adjustment
STEP 6. Auto Control system
STEP 7. Viewfinder system

STEP 1. Power supply system

Note:
If the specification is not met,. the PS-UNIT must be replaced. Please consult our service personel.

Equipment: Digital voltmeter

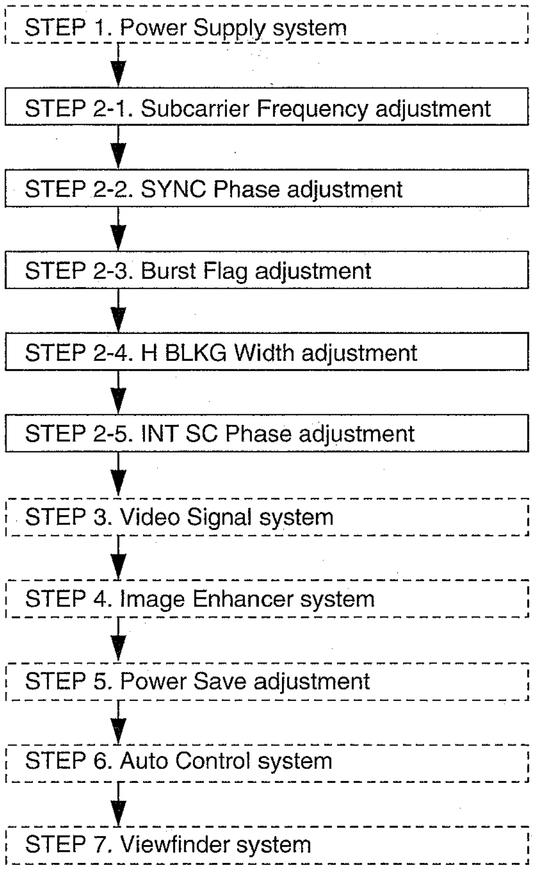
To be extended: SG-206P board

Test point: shown below

Adjustment procedures:
Test point/specification:

	Test point/ extension board	Specification
+8.8 V	TP7	+8.8 ± 0.2 V dc
+7.0 V	TP3	+7.0 ± 0.2 V dc
+5.0 V	TP5	+5.0 ± 0.2 V dc
-2.5 V	TP47	+2.5 ± 0.2 V dc
-5.0 V	TP46	-5.0 ± 0.2 V dc

STEP 2. SYNCHRONIZING SIGNAL SYSTEM


STEP 1. Power Supply system
STEP 2-1. Subcarrier Frequency adjustment
STEP 2-2. SYNC Phase adjustment
STEP 2-3. Burst Flag adjustment
STEP 2-4. H BLKG Width adjustment
STEP 2-5. INT SC Phase adjustment
STEP 3. Video Signal system
STEP 4. Image Enhancer system
STEP 5. Power Save adjustment
STEP 6. Auto Control system
STEP 7. Viewfinder system

STEP 2-1. Subcarrier Frequency adjustment

Note:

1. Before adjustment, set the CAMERA/VTR power switch to ON/STBY position and allow for ten minutes warm-up time.
2. Make sure that the camera is not in GENLOCK mode.

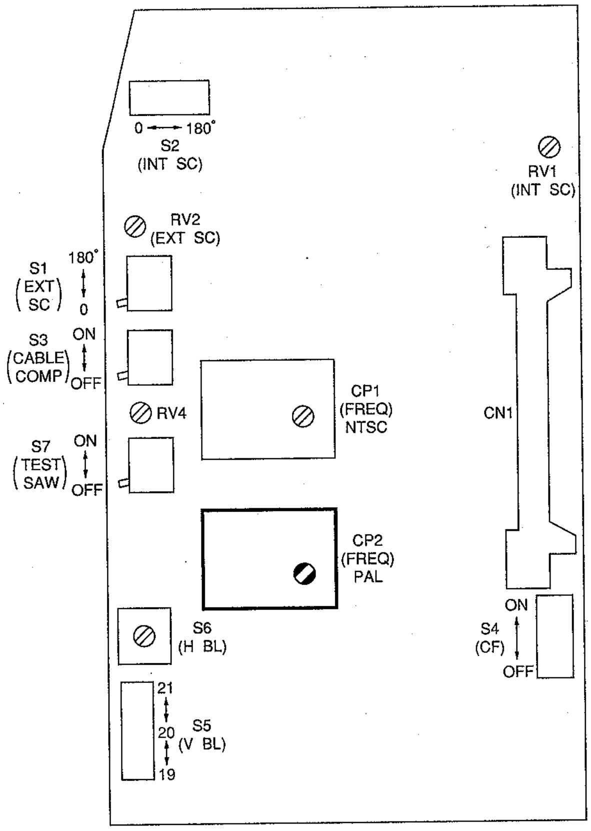
Equipment: Frequency counter

To be extended: SG-206P board

Test point: TP35 (GND: TP36)/extension board

Adjust point: ⊘CP2 (SC FREQ)/SG-206P board

Specification: 4,433,619 ± 10 Hz


0 ←→ 180°
S2
(INT SC)
RV1
(INT SC)
RV2
(EXT SC)
S1
(EXT SC)
180°
0
S3
(CABLE COMP)
ON
OFF
RV4
CP1
(FREQ)
NTSC
CN1
S7
(TEST SAW)
ON
OFF
CP2
(FREQ)
PAL
S6
(H BL)
ON
S4
(CF)
OFF
21
20
19
S5
(V BL)

SG-206P BOARD (COMPONENT SIDE)

STEP 2-2. SYNC Phase adjustment

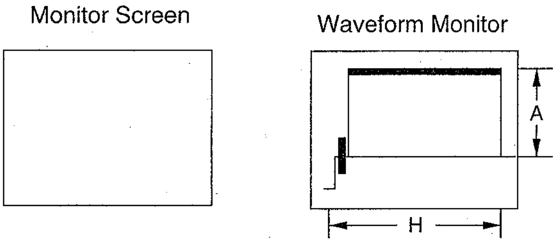
Equipment: Waveform monitor

To be extended: EN-107P board

Preparation:

- ENC/RGB switch (side panel) → "ENC"

Object: White window chart


Monitor Screen

Waveform Monitor

Lens Zoom: Underscanned picture frame on the monitor = Chart frame

Lens iris: Adjust the lens iris so that the white level is 700 ± 10 mV at TEST OUT connector.

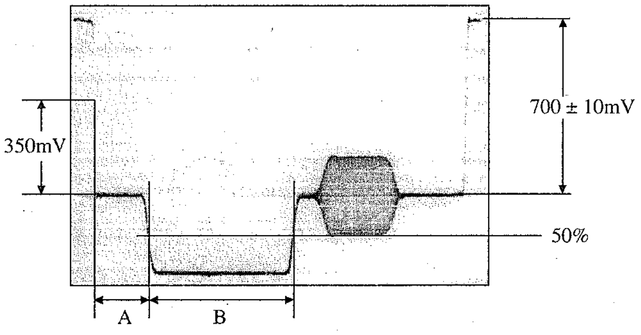
Adjustment procedures:

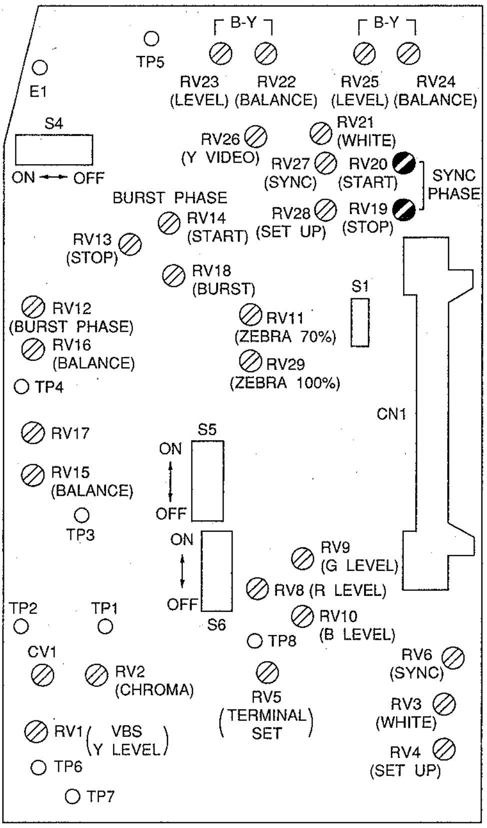
1. Test point: TEST OUT connector

Specification: A = 1.65 ± 0.1 µs
B = 4.7 ± 0.1 µs

Adjust point: A = ⊘RV20 (SYNC START PHASE) / EN-107P board
B = ⊘RV19 (SYNC STOP PHASE) / EN-107P board

Note: ⊘RV20/EN-107P board should be adjusted first, then adjust ⊘RV19 /EN-107P board.


350mV
700 ± 10mV
50%
A
B


B-Y
B-Y
TP5
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ↔ OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV16 (BALANCE)
RV11 (ZEBRA 70%)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
OFF
RV15 (BALANCE)
TP3
ON
OFF
S6
RV9 (G LEVEL)
RV8 (R LEVEL)
RV10 (B LEVEL)
TP2
TP1
TP8
CV1
RV2 (CHROMA)
RV5 (TERMINAL SET)
RV6 (SYNC)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
RV4 (SET UP)
TP6
TP7

EN-107P BOARD (COMPONENT SIDE)

STEP 2-3. Burst Flag adjustment

Equipment: Waveform monitor

To be extended: EN-107P board

Preparation:

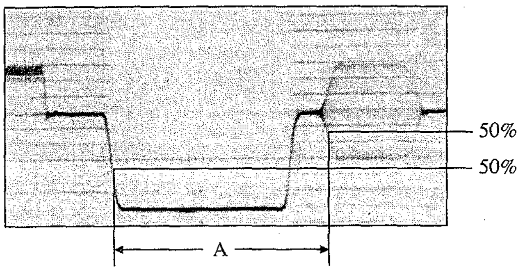
- ENC/RGB switch (side panel) → "ENC"

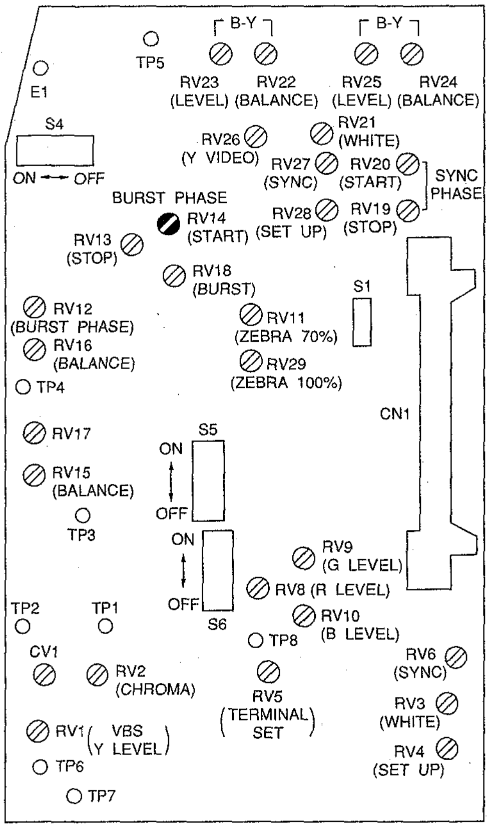
Test point: TEST OUT connector

Adjust point: ●RV14 (BURST START)/EN-107P board

Specification: A = 5.6 ± 0.1 μs

Adjustment procedures:




B-Y
B-Y
TP5
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ←→ OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
RV15 (BALANCE)
OFF
TP3
ON
RV9 (G LEVEL)
RV8 (R LEVEL)
TP2
TP1
OFF
S6
RV10 (B LEVEL)
TP8
CV1
RV6 (SYNC)
RV2 (CHROMA)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
RV4 (SET UP)
TP6
TP7

EN-107P BOARD (COMPONENT SIDE)

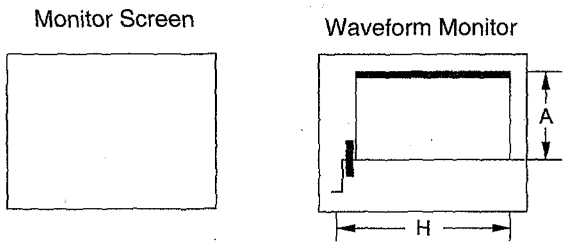
STEP 2-4. H BLKG Width adjustment

Equipment: Waveform monitor

To be extended: SG-206P board

Preparation:
- ENC/RGB switch (side panel) → "ENC"

Object: White window chart


Monitor Screen

Waveform Monitor

Lens Zoom: Underscanned picture frame on the monitor = Chart frame

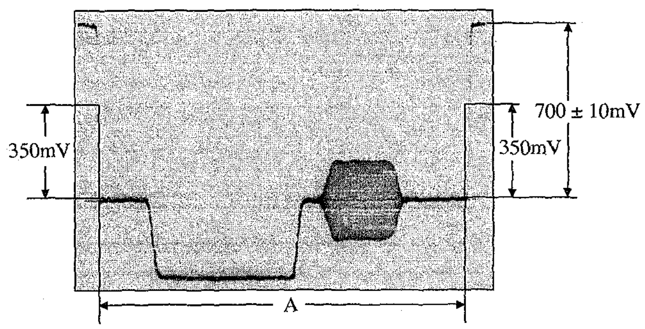
Lens iris: Adjust the lens iris so that the white level is 700 ± 10 mV at TEST OUT connector.

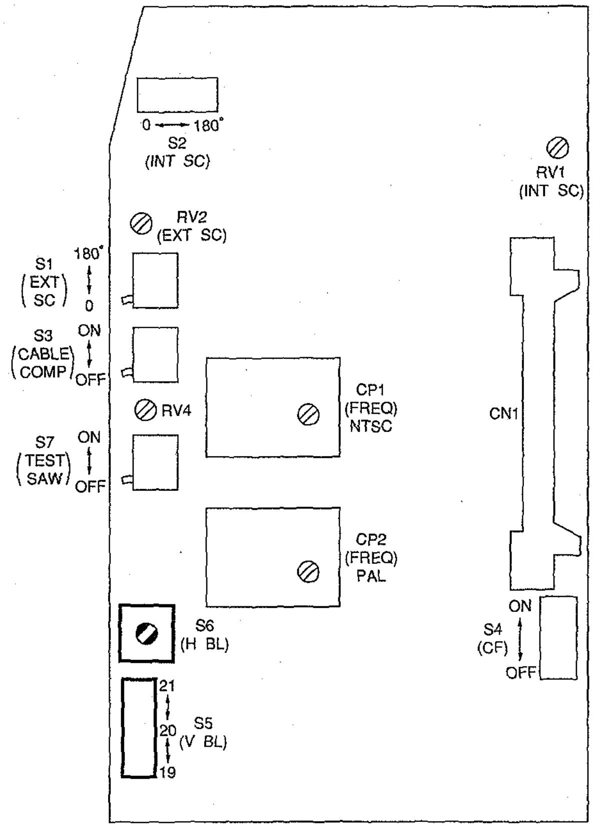
Specification: A = 12.05 ± 0.25 µs

Adjustment procedures:

1. Test point: TEST OUT connector

Adjust point: ⊘S6 (H BLKG SELECT)/SG-206P board




0 ←→ 180°
S2
(INT SC)
RV1
(INT SC)
RV2
(EXT SC)
S1
(EXT SC)
180°
0
S3
(CABLE COMP)
ON
OFF
RV4
CP1
(FREQ)
NTSC
CN1
S7
(TEST SAW)
ON
OFF
CP2
(FREQ)
PAL
S6
(H BL)
S4
(CF)
ON
OFF
21
20
19
S5
(V BL)

SG-206P BOARD (COMPONENT SIDE)

STEP 2-5. INT SC Phase adjustment

Note:

- The procedure stated below applies to the adjustments where the Tektronix 1751 is used.
- If any other measuring instrument is used, observe the instructions given in the operation manual attached to it.

Equipment: SC-H Phase measuring instrument

To be extended: SG-206P board

Preparation:

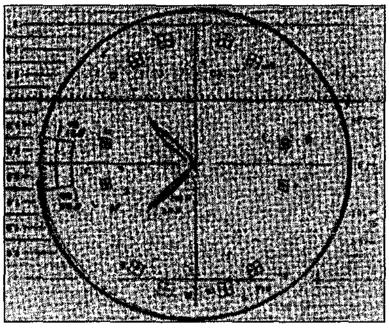
- Disconnect the vectorscope, and connect the Tektronix 1751 instead.
- Put the Tektronix 1751 into the SC-H mode.

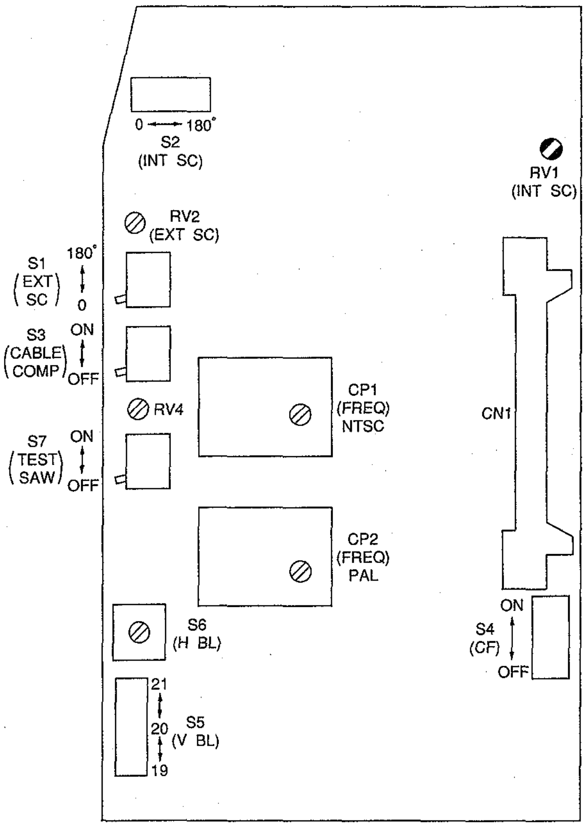
Test point: VIDEO OUT connector

Adjust point: ⊘ RV1 (INT SC PHASE)/SG-206P board

Adjustment procedures:

Position the luminous line of the burst (SC) and the luminescent spot of H properly.

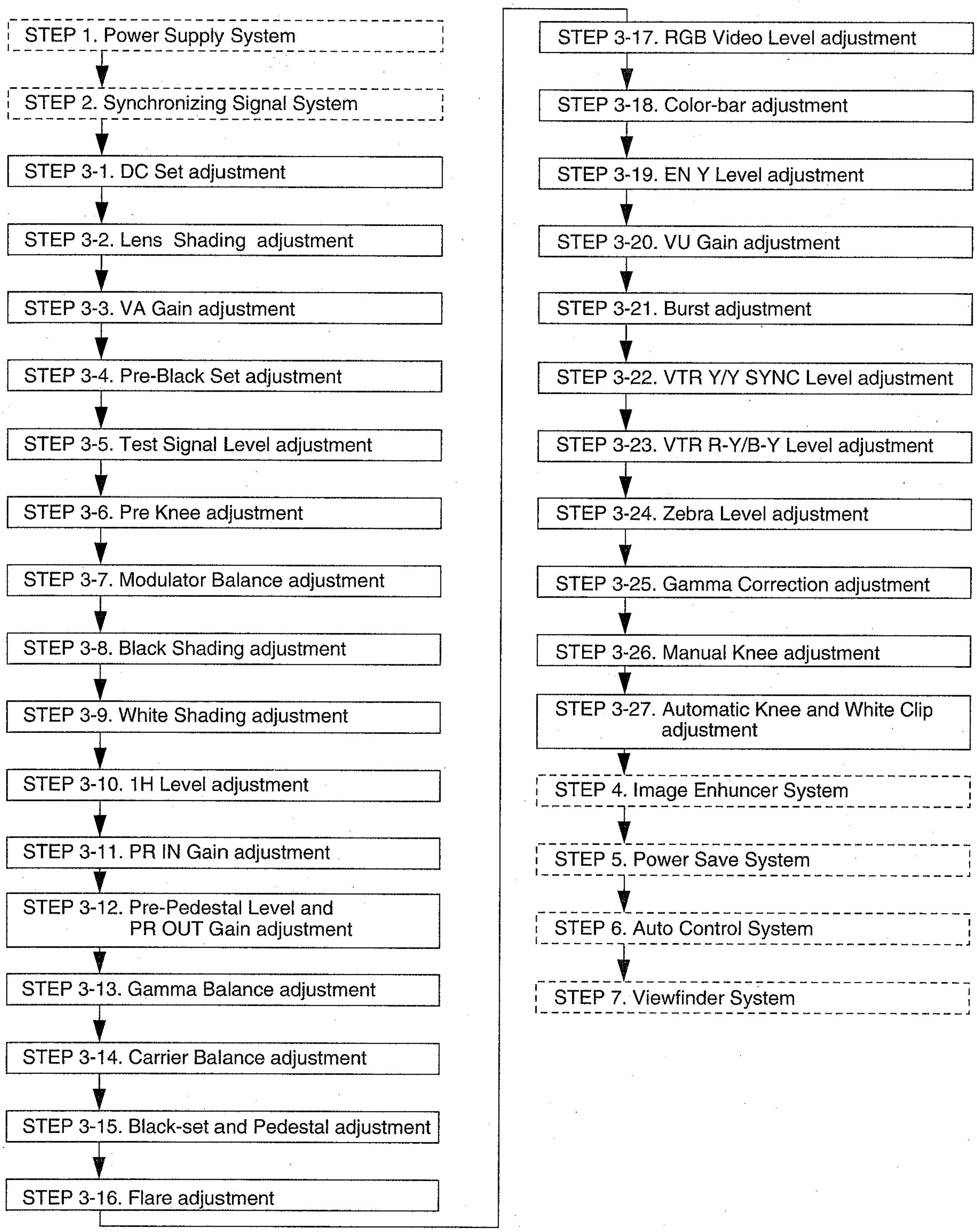




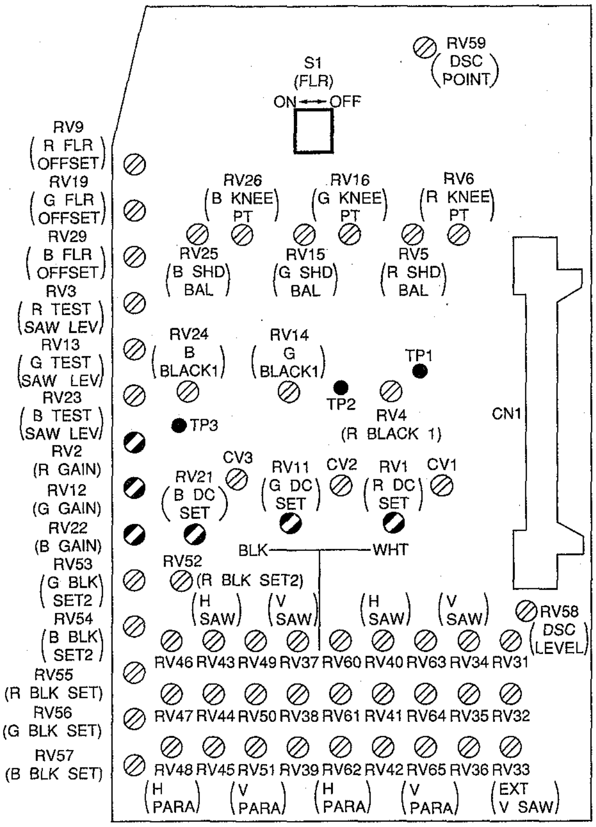
0 ←→ 180°
S2
(INT SC)
RV1
(INT SC)
RV2
(EXT SC)
S1
(EXT SC)
180°
0
S3
(CABLE COMP)
ON
OFF
RV4
CP1
(FREQ)
NTSC
CN1
S7
(TEST SAW)
ON
OFF
CP2
(FREQ)
PAL
ON
S4
(CF)
OFF
S6
(H BL)
21
20
19
S5
(V BL)

SG-206P BOARD (COMPONENT SIDE)

STEP 3. VIDEO SIGNAL SYSTEM


STEP 1. Power Supply System
STEP 2. Synchronizing Signal System
STEP 3-1. DC Set adjustment
STEP 3-2. Lens Shading adjustment
STEP 3-3. VA Gain adjustment
STEP 3-4. Pre-Black Set adjustment
STEP 3-5. Test Signal Level adjustment
STEP 3-6. Pre Knee adjustment
STEP 3-7. Modulator Balance adjustment
STEP 3-8. Black Shading adjustment
STEP 3-9. White Shading adjustment
STEP 3-10. 1H Level adjustment
STEP 3-11. PR IN Gain adjustment
STEP 3-12. Pre-Pedestal Level and PR OUT Gain adjustment
STEP 3-13. Gamma Balance adjustment
STEP 3-14. Carrier Balance adjustment
STEP 3-15. Black-set and Pedestal adjustment
STEP 3-16. Flare adjustment
STEP 3-17. RGB Video Level adjustment
STEP 3-18. Color-bar adjustment
STEP 3-19. EN Y Level adjustment
STEP 3-20. VU Gain adjustment
STEP 3-21. Burst adjustment
STEP 3-22. VTR Y/Y SYNC Level adjustment
STEP 3-23. VTR R-Y/B-Y Level adjustment
STEP 3-24. Zebra Level adjustment
STEP 3-25. Gamma Correction adjustment
STEP 3-26. Manual Knee adjustment
STEP 3-27. Automatic Knee and White Clip adjustment
STEP 4. Image Enhuncer System
STEP 5. Power Save System
STEP 6. Auto Control System
STEP 7. Viewfinder System

STEP 3-1. DC Set adjustment


S1
(FLR)
ON ↔ OFF
RV59 (DSC POINT)
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
RV4 (R BLACK 1)
TP3
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)

Note:

- Carry out the STEP 3-1. DC Set adjustment to the STEP 3-4. Pre-Black Set adjustment in order, or their adjustments will become invalid.

Equipment: Oscilloscope

To be extended: VA-132 board

Trigger: HD (TP45/extension board)

Preparation:

- S7 (TEST SAW)/SG-206P board → "OFF"
- ⊘RV2 (R GAIN)/VA-132 board → mechanical center
- ⊘RV12 (G GAIN)/VA-132 board → mechanical center
- ⊘RV22 (B GAIN)/VA-132 board → mechanical center

Lens iris: Close "C"

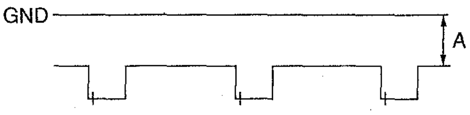
Test point: mentioned below

Adjustment procedures:

Adjust every channel as shown below.

	Test point /VA-132 board	Adjust point /VA-132 board	Specification
R-ch	TP1	⊘RV1	A = 0 ± 0.5 V dc
G-ch	TP2	⊘RV11	
B-ch	TP3	⊘RV21	

(GND: GND on the extension board)



STEP 3-2. Lens Shading adjustment

Equipment: Waveform monitor

To be extended: VA-132 board

Preparation:

- ⊘RV58/VA-132 board → "fully clockwise" ↻
- ⊘RV59/VA-132 board → "fully clockwise" ↻

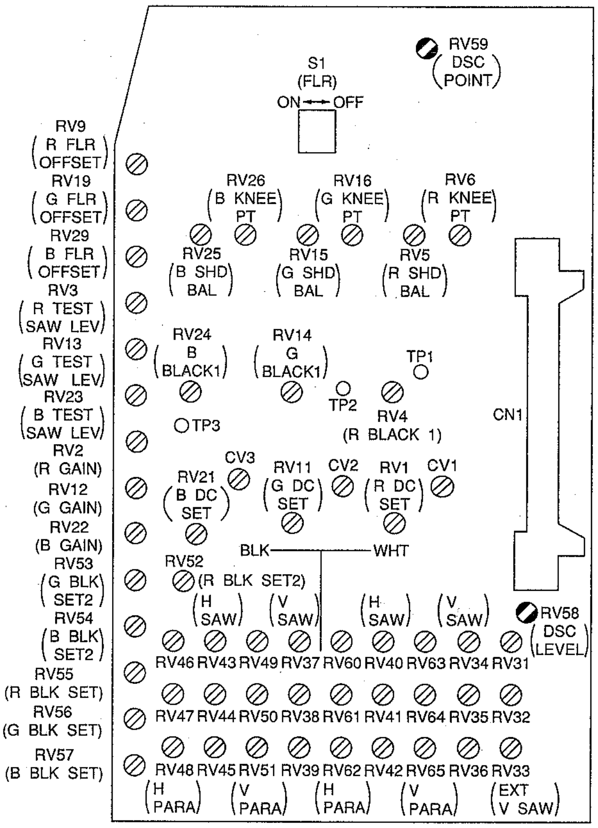
Object: White window chart

Lens Zoom: Underscanned picture frame on the monitor = chart frame

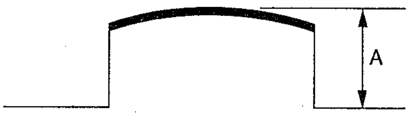
Lens iris: fully open

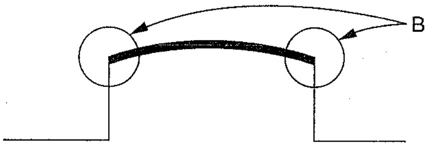
Adjustment procedures:

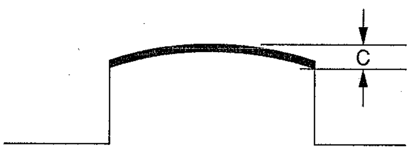
1. Set the SHUTTER selector on the front panel so that the video level "A" is 490 mV.
2. Lens Zoom: 80 mm position at lens
3. Turn ⊘RV59/VA-132 board counterclockwise slowly and stop where the edge (point Ⓑ) of the waveform just starts to be moved.
4. Adjust ⊘RV58/VA-132 board to minimize the level "C" when turning the lens zoom from 80 mm position to TELE position.


RV59 (DSC POINT)
S1 (FLR)
ON ←→ OFF
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
TP3
RV4 (R BLACK 1)
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)







C≧0

STEP 3-3. VA Gain adjustment

Note:

1. Be sure to complete STEP 3-1. DC Set adjustment.
2. • When the pattern box is used, well maintained pattern box should be used.
   • When using a white pattern chart for this adjustment. Adjust the lighting so that the white area is exactly 3200K of color temperature. Ensure that the chart is lit to 2000 lux.

Equipment: Oscilloscope

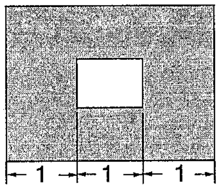
To be extended: VA-132 board

Trigger: HD (TP45/extension board)

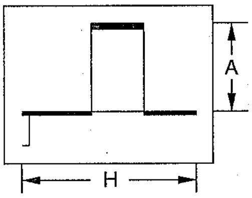
Preparation:

Object: White window chart

Monitor Screen

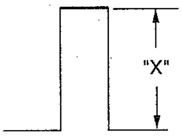


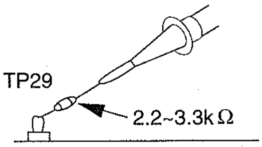
Waveform Monitor



Lens Zoom: Shoot the white window chart as shown above.

Lens iris: Adjust the iris control so that the white level at TP29 (GND: TP33) on the extension board is 250 ± 30 mV p-p.

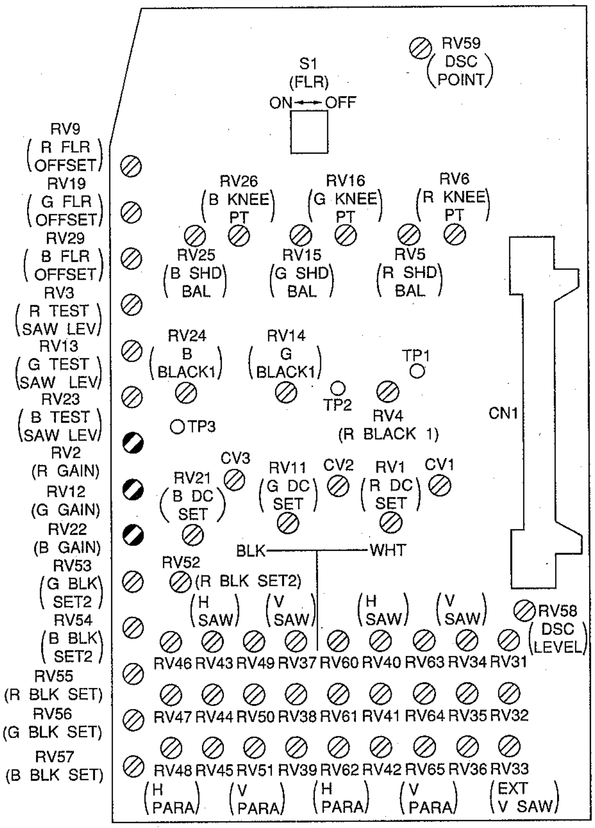




TP29
2.2~3.3kΩ

Note: When measuring the TP29, connect the resistance (2.2 ~ 3.3 K ohms) between the probe and the TP34.

Test point: See adjustment procedures.



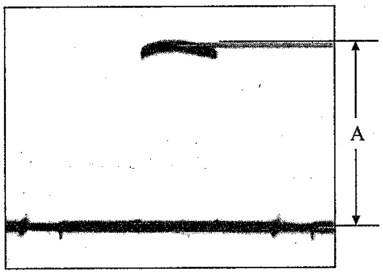
RV59 (DSC POINT)
S1 (FLR)
ON OFF
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
RV4 (R BLACK 1)
CN1
TP3
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)

Adjustment procedures:

Adjust every channel as shown below.

	Test point/ extension board	Adjust point /VA-132 board	Specification
R-ch	TP13	⊘RV2	A = 0.5 ± 0.01 V p-p
G-ch	TP15	⊘RV12	
B-ch	TP17	⊘RV22	



STEP 3-4. Pre-Black Set adjustment

Equipment: Oscilloscope

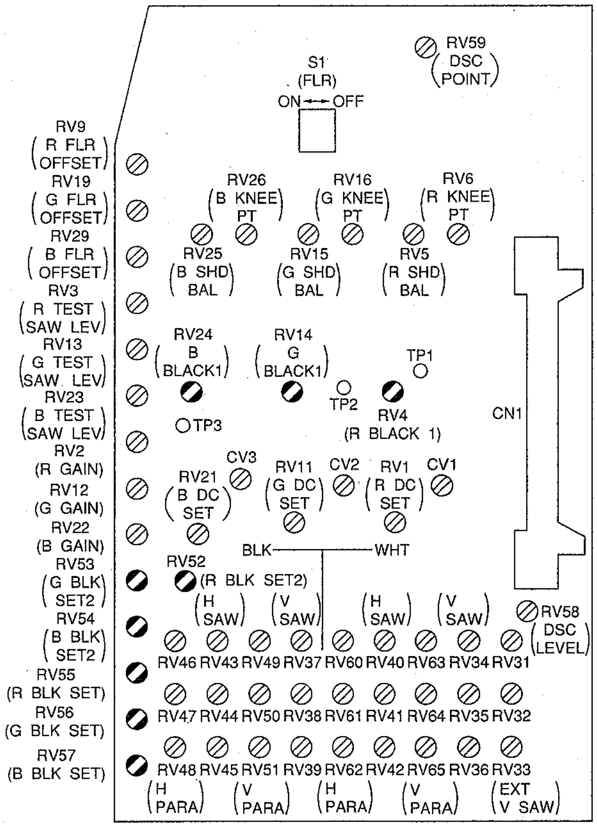
To be extended: VA-132 board

Trigger: HD (TP45/extension board)

Preparation:
- S7 (TEST)/SG-206P board → "OFF"
- OUTPUT/DCC switch (side panel) → "CAM/OFF"
- GAIN switch (side panel) → "0 dB"

Lens iris: Close "C"

Test point: mentioned below



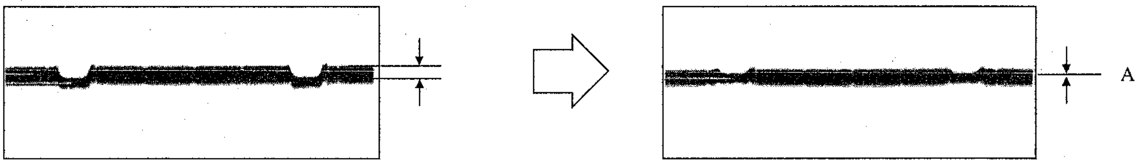
RV59 (DSC POINT)
S1 (FLR)
ON ↔ OFF
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
TP3
RV4 (R BLACK 1)
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)

Adjustment procedures:

	Test point/ extension board	Adjust point / VA-132		
		BLK SET 1	BLK 1	BLK SET 2
R-ch	TP13	⊘RV55	⊘RV4	⊘RV52
G-ch	TP15	⊘RV56	⊘RV14	⊘RV53
B-ch	TP17	⊘RV57	⊘RV24	⊘RV54

(GND: GND on the extension board)



< In case of R-ch >

1. Adjust ⊘ RV55 (BLK SET 1)/VA-132 board so that the level of waveform does not fluctuate even when the GAIN switch (side panel) is turned 0 dB or 9 dB.
2. ⊘RV4 (BLK 1)/VA-132 board → A = 0
3. Adjust ⊘ RV52 (BLK SET 2)/VA-132 board so that the level of waveform does not fluctuate even when the GAIN switch (side panel) is turned 9 dB or 18 dB.

Note: Since this adjustment and the DC Set adjustment in STEP 3-1. are related to each other. Therefore, repeat STEP 3-1. and this adjustment a few times.

STEP 3-5. Test Signal Level adjustment

Equipment: Oscilloscope

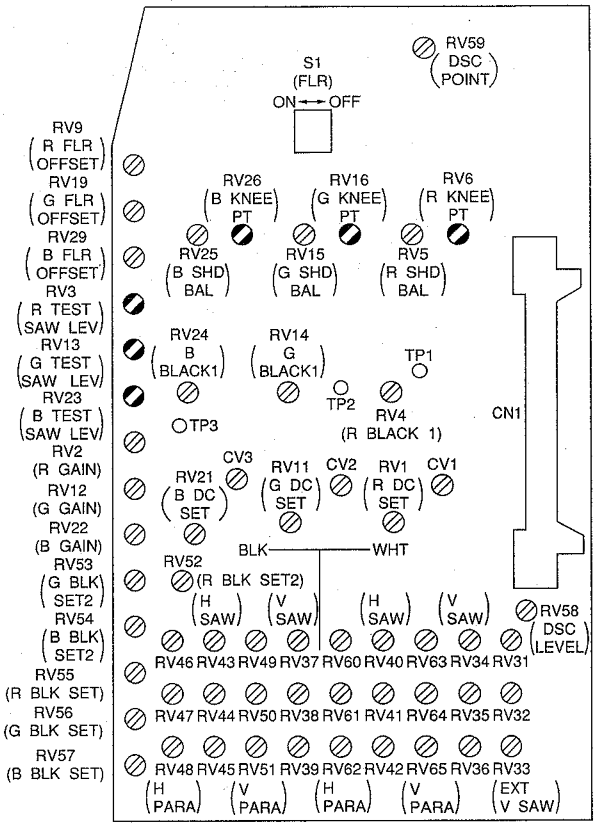
To be extended: VA-132 board

Trigger: HD (TP45/extension board)

Preparation:
- S7 (TEST)/VA-132 board → "ON"
- GAIN switch (side panel) → "0 dB"
- ⊘RV6 (R PRE KNEE)/VA-132 board → fully clockwise ↻
- ⊘RV16 (G PRE KNEE)/VA-132 board → fully clockwise ↻
- ⊘RV26 (B PRE KNEE)/VA-132 board → fully clockwise ↻

Lens Close: Close "C"

Test point: mentioned below

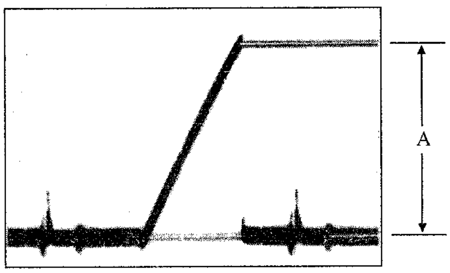

RV59 (DSC POINT)
S1 (FLR)
ON ↔ OFF
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
RV4 (R BLACK 1)
OTP3
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52
(R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)

Adjustment procedures:

Adjust every channel as shown below.

	Test point/ extension board	Adjust point /VA-132 board	Specification
R-ch	TP13	⊘RV3	A = 0.5 ± 0.01 V p-p
G-ch	TP15	⊘RV13	
B-ch	TP17	⊘RV23	



STEP 3-6. Pre-Knee adjustment

Equipment: Oscilloscope

To be extended: VA-132 board

Trigger: HD (TP45/extension board)

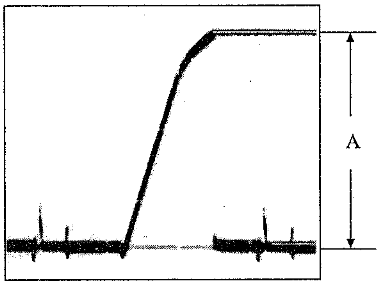
Preparation:
- GAIN switch (side panel) → "9 dB"
- S7 (TEST)/SG-206P board → "ON"

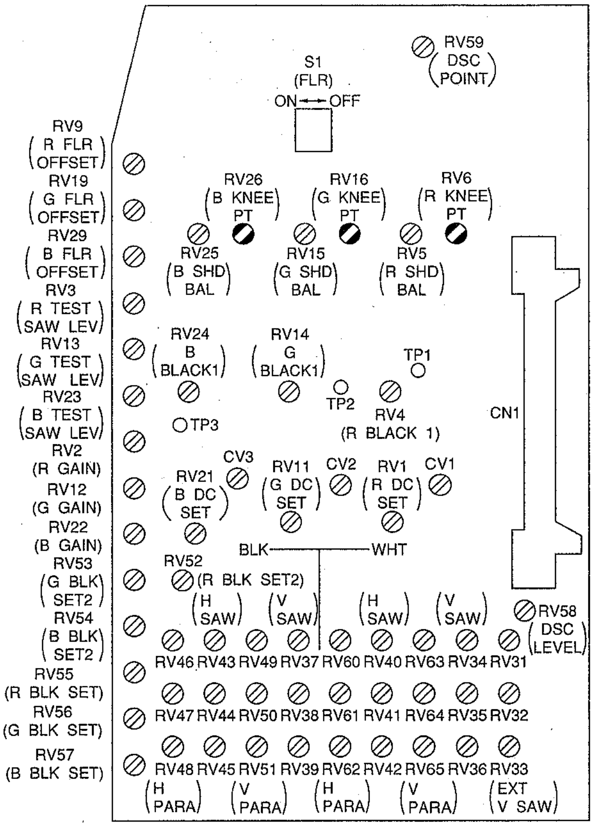
Test point: mentioned below

Adjustment procedures:

Adjust every channel as shown below.

	Test point/ extension board	Adjust point /VA-132 board	Specification
R-ch	TP13	⊘RV6	A = 1.10 ± 0.02 V p-p
G-ch	TP15	⊘RV16	
B-ch	TP17	⊘RV26	




RV59 (DSC POINT)
S1 (FLR) ON↔OFF
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
RV4 (R BLACK 1)
CN1
TP3
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)

Note:

After this adjustment is complete, set the switch as follows.
- S3 (CLIP)/PR-179 board → "ON"

STEP 3-7. Modulator Balance adjustment

Equipment: Oscilloscope

To be extended: VA-132 board

Trigger: VD (TP44/extension board)

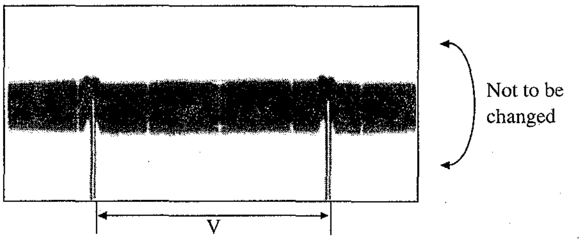
Lens iris: Close "C"

Test point: mentioned below

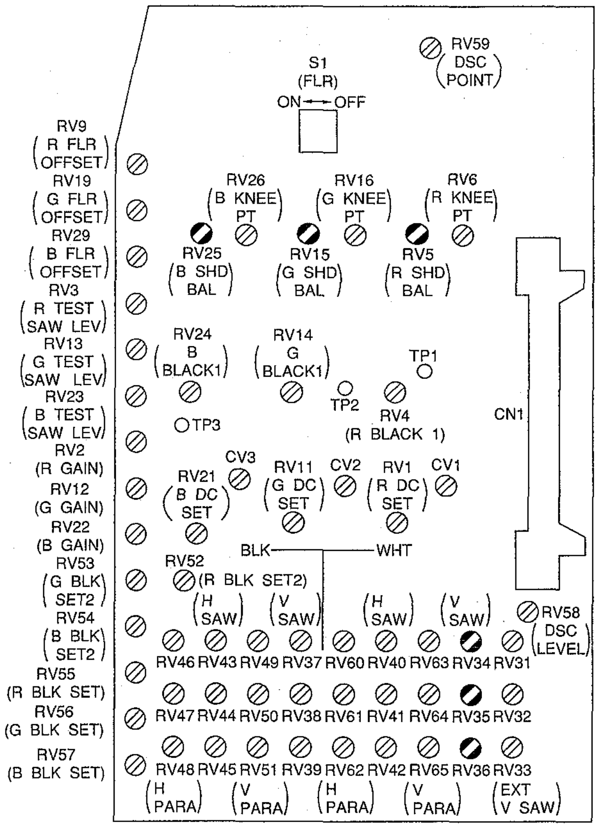
Adjustment procedures:

1. Adjust every channel as shown below;
   Adjust the ⊘ "B" so that the waveform does not change even if ⊘"A" is turned both clockwise and counterclockwise fully.

	Test point /exVtension board	Adjust point/VA-132 board	
		A	B
R-ch	TP13	⊘ RV34	⊘ RV5
G-ch	TP15	⊘ RV35	⊘ RV15
B-ch	TP17	⊘ RV36	⊘ RV25


Not to be changed
V

2. After this adjustment is complete, set ⊘ RV34, ⊘ RV35 and ⊘ RV36 to the mechanical center.


RV59 (DSC POINT)
S1 (FLR)
ON⟷OFF
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
TP3
RV4 (R BLACK 1)
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
RV52
BLK
WHT
(R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)

Note:

- After this adjustment is complete, carry out STEP 3-9. White shading adjustment.

STEP 3-8. Black Shading adjustment

Equipment: Waveform monitor (LUM mode)

To be extended: VA-132 board

Preparation:

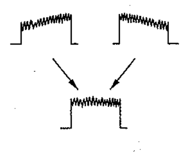
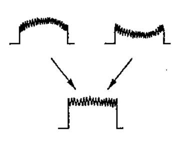
- GAIN switch (side panel) ⟶ "18 dB"
- ENC/RGB switch (side panel) ⟶ "RGB"
- S7 (TEST)/SG-206P board ⟶ "OFF"

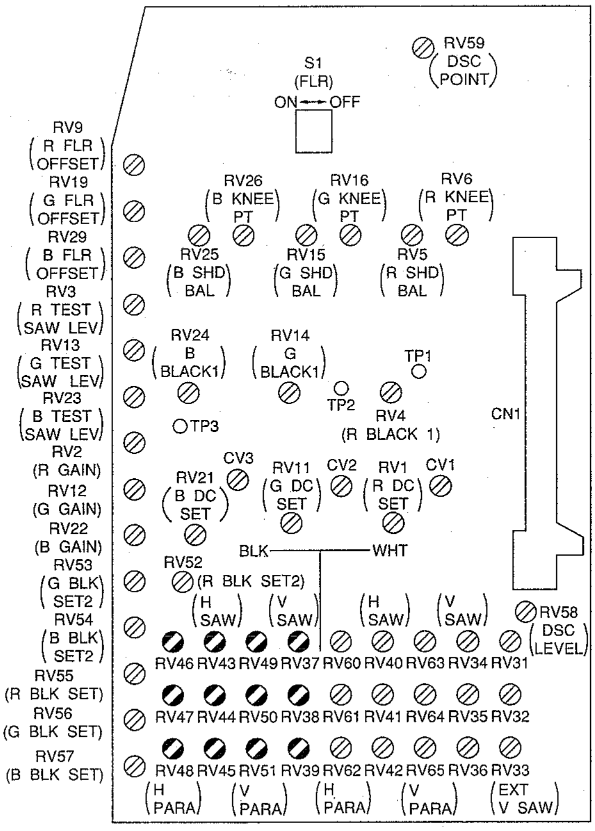
Lens iris: Close "C"

Test point: TEST OUT connector

Adjustment procedures:

1. Adjust the PEDESTAL control (side panel) so that the pedestal level is approx. 70 mV.
2. Set the LUM mode at the waveform monitor, and set the VOLT FULL SCALE range at 0.5.
3. Adjust ⊘ RVs in each channel so that the waveform at the TEST OUT connector is flat as shown below.

	Switches setting(side panel)	Adjust point/VA-132 board			
		H SAW	V SAW	H PARA	V PARA
R-ch	R/G/B "R"	⊘ RV43	⊘ RV37	⊘ RV46	⊘ RV49
G-ch	R/G/B "G"	⊘ RV44	⊘ RV38	⊘ RV47	⊘ RV50
B-ch	R/G/B "B"	⊘ RV45	⊘ RV39	⊘ RV48	⊘ RV51
	TEST OUT connector				


S1
(FLR)
ON⟷OFF
RV59 (DSC POINT)
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
RV4 (R BLACK 1)
TP3
CN1
CV3
RV11
CV2
RV1
CV1
RV21 (B DC SET)
(G DC SET)
(R DC SET)
BLK
WHT
RV52 (R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)

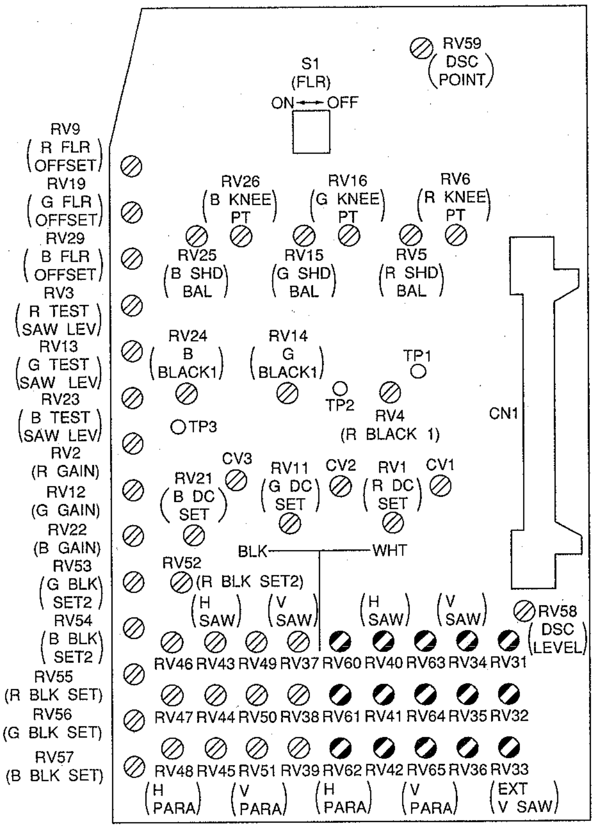
Note:
After this adjustment is complete, set the switch as follows.

- GAIN switch (side panel)⟶"0 dB"
- PEDESTAL control (side panel)⟶"mechanical center"

STEP 3-9. White Shading adjustment

Note:

1. Before this adjustment is performed, be sure to complete STEP 3-7. Modulator Balance adjustment.
2. When using the lens with the EXTENDER attached, carry out the EXT V SAW adjustment. Before this adjustment, set the EXT lever of lens at X2 position and adjust the iris control so that the video level at TEST OUT connector is 700±10 mV. After this adjustment is completed, set the EXT lever at X1 position.



S1 (FLR)
ON ↔ OFF
RV59 (DSC POINT)
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
TP3
RV4 (R BLACK 1)
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
H SAW
V SAW
H SAW
V SAW
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
H PARA
V PARA
H PARA
V PARA
EXT V SAW

VA-132 BOARD (COMPONENT SIDE)

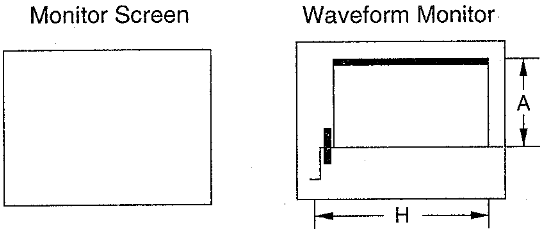
Equipment: Waveform monitor

To be extended: VA-132 board

Preparation:

- ENC/RGB switch (side panel) → "RGB"
- S3 (WHT CLIP)/PR-179 board → "OFF"

Object: White window



Monitor Screen
Waveform Monitor
A
H

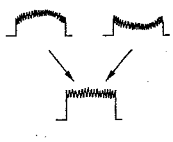
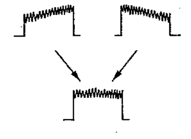
Lens Zoom: Set the zoom control at TELE and shoot the white area of white window chart.

Lens iris: A = 700 ±10 mV
(at TEST OUT connector)

Test point: TEST OUT connector

Adjustment procedures:

Adjust the every adjusting point so that the waveform is flat.

	Switches setting(side panel)	Adjust point/VA-132 board				
		H-PARA	V-PARA	H-SAW	V-SAW	EXTV-SAW
R	R/G/B→"R"	⊘RV60	⊘RV63	⊘RV40	⊘RV34	⊘RV31
G	R/G/B→"G"	⊘RV61	⊘RV64	⊘RV41	⊘RV35	⊘RV32
B	R/G/B→"B"	⊘RV62	⊘RV65	⊘RV42	⊘RV36	⊘RV33
TEST OUT connector						

STEP 3-10. 1H, R, G, B Level Adjustment

Equipment: Oscilloscope

To be extended: IE-39P board

Preparation:
- S7 (TEST)/SG-206P board → "ON"
- S1 (DTL)/IE-39 board → "OFF"
- S2 (APT)/IE-39 board → "OFF"

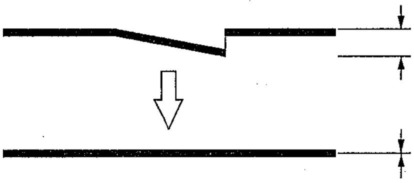
Adjustment procedures:

1. 1H, R, G, B level adjustment

Test point: CH1:TP1/extension board
CH2:TP2/extension board

Adj. point: ⊘RV6/IE-39 board

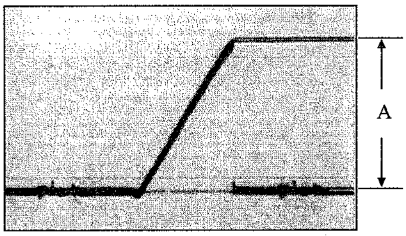
Specification:

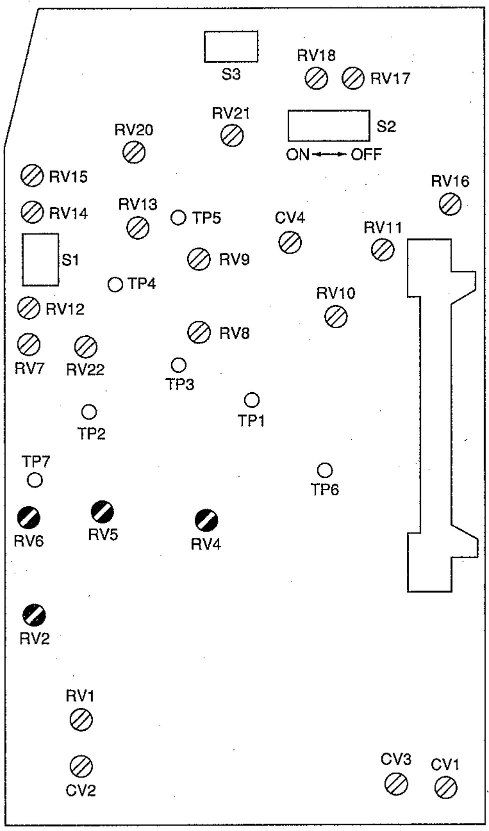


- Check the waveform in which CH2 is INV ADDed to CH1 with an oscilloscope and make adjustments with ⊘RV6 so that the waveform is flat.

2. R, G, B level adjustment

	Test point/ extension board	Adjust point/ IE-39P board	Specification
R-ch	TP22	⊘RV5	A =0.5 ± 0.01 Vp-p
G-ch	TP24	⊘RV2	
B-ch	TP26	⊘RV4	




S3
RV18
RV17
RV21
S2
RV20
ON ← → OFF
RV15
RV16
RV13
RV14
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP2
TP1
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV3
CV1
CV2

IE-39P BOARD (COMPONENT SIDE)

STEP 3-11. PR IN Gain adjustment

Note:

- Be sure to complete STEP 3-5. TEST signal level adjustment.
- GAIN Switch (side panel) → "0 dB"

Equipment: Oscilloscope

To be extended: PR-179 board

Trigger: CP (TP30/extension board)

Preparation:

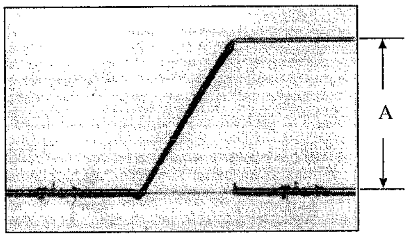
- OUTPUT/DCC switch (side panel) → "CAM/OFF"
- GAIN switch (side panel) → "0 dB"
- S7 (TEST)/SG-206P board → "ON"

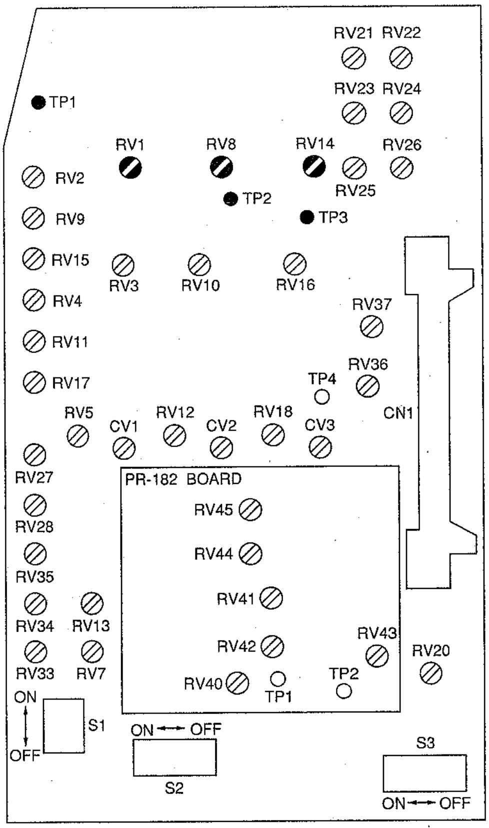
Test point: mentioned below

Adjustment procedures:

Adjust every channel as shown below.

	Test point/ PR-179 board	Adjust point/ PR-179 board	Specification
R-ch	TP1	⊘ RV1	A =2.0 ±0.1 Vp-p
G-ch	TP2	⊘ RV8	
B-ch	TP3	⊘ RV14	




RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV37
RV4
RV11
RV36
RV17
TP4
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34
RV13
RV43
RV42
RV20
RV33
RV7
RV40
TP1
TP2
ON
OFF
S1
ON OFF
S2
S3
ON OFF

PR-179 BOARD (COMPONENT SIDE)

STEP 3-12. Pre-Pedestal Level and PR OUT Gain adjustment

Equipment: Oscilloscope

To be extended: PR-179 board

Trigger: CP (TP30/extension board)

Preparation:
- S7 (TEST)/SG-206P board → "ON"
- S3 (WHT CLIP)/PR-179 board → "OFF"

Test point: mentioned below

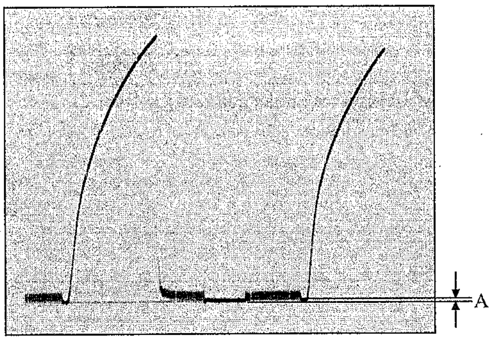
Adjustment procedures:

Adjust every channel as shown below.

1. Pre-pedestal level adjustment

   Preparation:
   - S2 (γ ON/OFF)/PR-179 board →"ON"

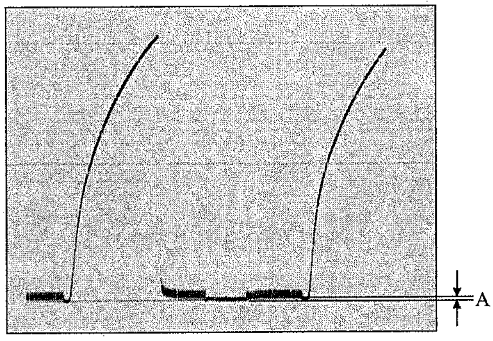
	Test point /extension board	Adjust point /PR-179 board	Specification
R-ch	TP42	⊘RV2	A =20±2 mVp-p
G-ch	TP40	⊘RV9	
B-ch	TP38	⊘RV15	

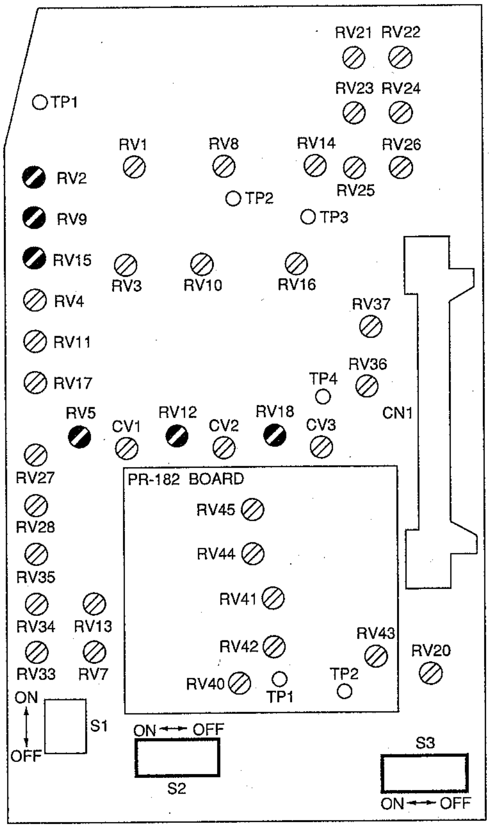


2. PR OUT Gain adjustment

   Preparation:
   - S2 (γ ON/OFF)/PR-179 board → "OFF"

	Test point /extension board	Adjust point /PR-179 board	Specification
R-ch	TP17	⊘RV5	B =700±7 mVp-p
G-ch	TP16	⊘RV12	
B-ch	TP18	⊘RV18	




RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV25
RV2
TP2
TP3
RV9
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
TP4
RV17
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34
RV13
RV43
RV42
RV20
RV33
RV7
RV40
TP1
TP2
ON
OFF
S1
ON OFF
S2
S3
ON OFF

PR-179 BOARD (COMPONENT SIDE)

STEP 3-13. Gamma Balance adjustment

Equipment: Oscilloscope

To be extended: PR-179 board

Trigger: CP (TP30/extension board)

Preparation:

- S7 (TEST)/SG-206P board → "ON"
- S3 (WHT CLIP)/PR-179 board → "OFF"

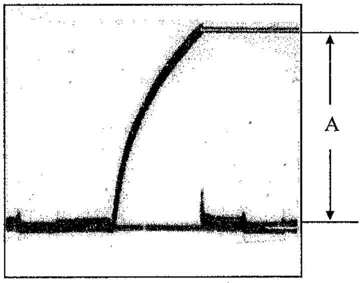
Test point: mentioned below

Adjustment procedures:

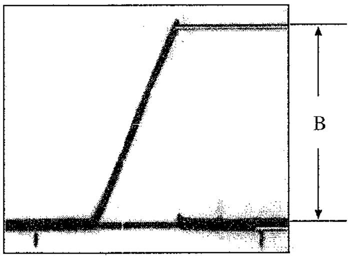
Adjust every channel so that the peak level of waveform does not change even if the S2 (γ ON/OFF)/PR-179 board is set to ON or OFF as shown below.

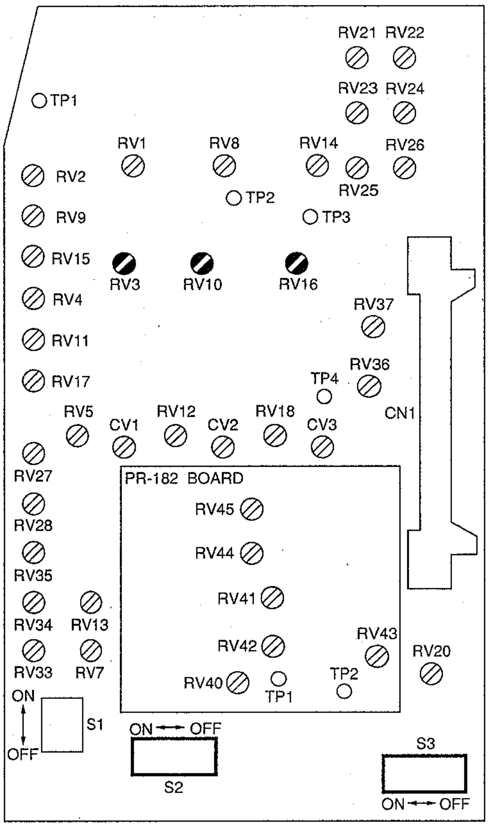
	Test point/ extension board	Adjust point PR-179 board
R-ch	TP42	⊘ RV3
G-ch	TP40	⊘ RV10
B-ch	TP38	⊘ RV16

γ: ON



γ: OFF




RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
TP4
RV17
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34
RV13
RV43
RV42
RV20
RV33
RV7
RV40
TP1
TP2
ON
OFF
S1
ON ↔ OFF
S2
S3
ON ↔ OFF

PR-179 BOARD (COMPONENT SIDE)

Note:

- After this adjustment is complete, be sure to carry out STEP 3-11, again.

STEP 3-14. Carrier Balance adjustment

Equipment: Vectorscope (MAX Gain)

Preparation:

- OUTPUT/DCC switch (side panel) → "BARS/OFF"
- ENC/RGB switch (side panel) → "ENC"

Test point: TEST OUT connector

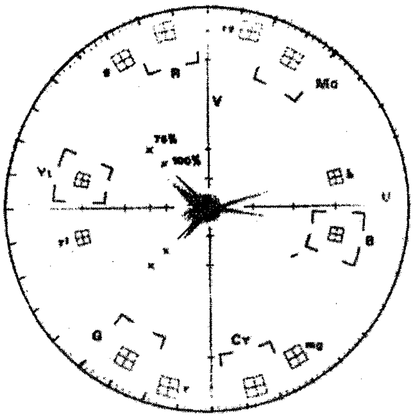
Adjust point: ⊘ RV16 (V BAL)/EN-107P board
⊘ RV15 (U BAL)/EN-107P board

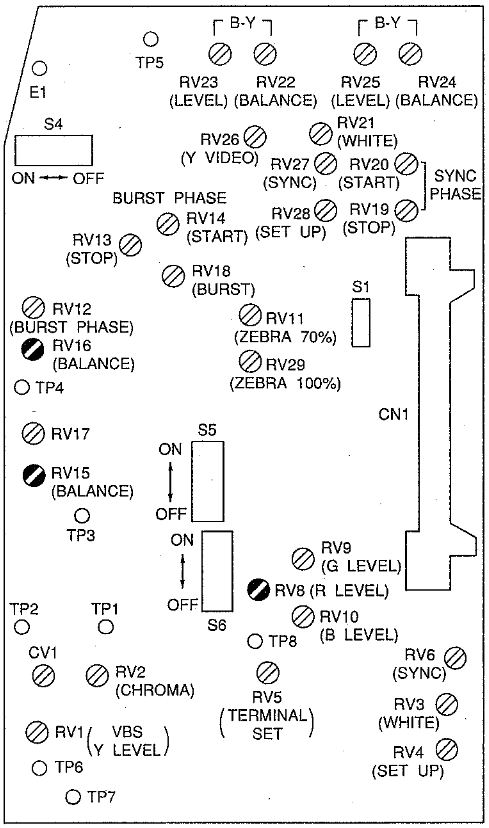
Adjustment procedures:

Adjust ⊘ RV16 (V BAL) and ⊘ RV15 (U BAL)/EN-107P board so as to center the black beam spot on the vectorscope.

Note:

- When black spots cannot be discriminated due to several beam spots, turn the ⊘ RV8/EN-107P board. The black beam spots cannot be shifted. In this case, after adjustment is complete, perform STEP 3-18. Color-bar adjustment.


R
Mg
V
75%
100%
YL
U
B
G
Cy


B-Y
B-Y
TP5
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
E1
S4
ON → OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
RV15 (BALANCE)
OFF
TP3
ON
RV9 (G LEVEL)
RV8 (R LEVEL)
TP2
TP1
OFF
S6
RV10 (B LEVEL)
TP8
CV1
RV2 (CHROMA)
RV6 (SYNC)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
RV4 (SET UP)
TP6
TP7

EN-107P BOARD (COMPONENT SIDE)

Note:

After this adjustment is complete, set the switch as follows.

- OUTPUT/DCC switch (side panel) → "CAM/OFF"

STEP 3-15. Black-set and Pedestal adjustment

Note:

- Be sure to reset the compensation data in the microprocessor, or this adjustment will become invalid. (See 4-1-3. Precaution on adjustments)

Equipment: Waveform monitor, Vectorscope (MAX Gain)

To be extended: VA-132 board

Preparation:

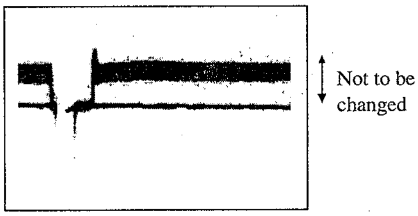
- ENC/RGB switch (side panel) → "RGB"
- R/G/B switch (side panel) → "G"

Lens iris: "C"

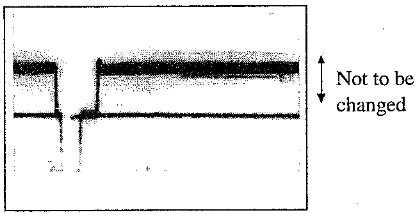
Test point: TEST OUT connector

Adjustment procedures:

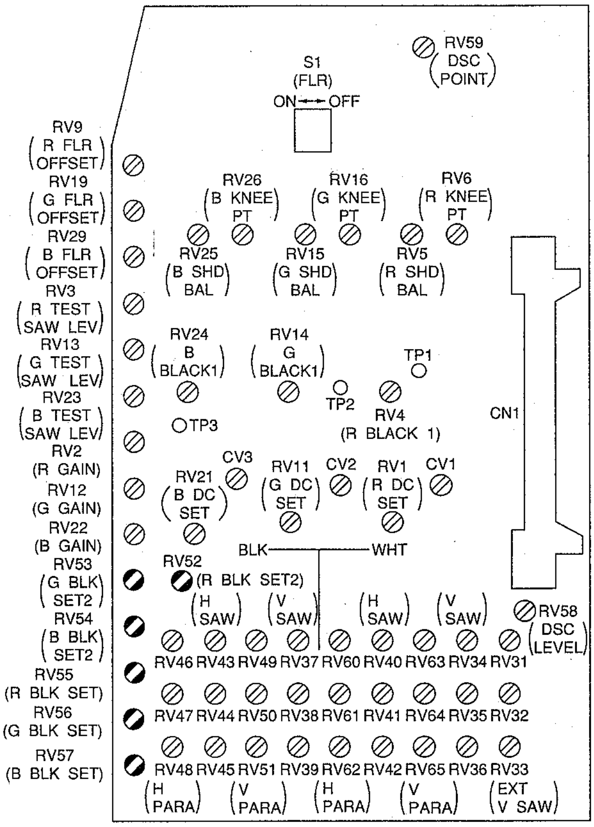
1. Adjust the PEDESTAL control (side panel) so that the pedestal level is approx. 70 mV.
2. Adjust the ⊘ RV56 (G BLK SET 1)/VA-132 board so that the pedestal level does not change even if the GAIN switch is set to "0 dB" or "9 dB".



3. Adjust the ⊘ RV53 (+18 dB BLK SET 2)/VA-132 board so that the pedestal level does not change even if the GAIN switch is set to "0 dB" or "19 dB".

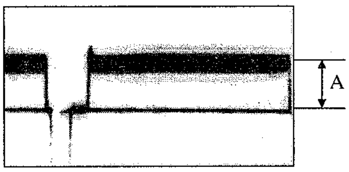


4. Set the PEDESTAL control (side panel) to "mechanical center".


S1
(FLR)
ON←→OFF
RV59 (DSC POINT)
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
TP3
RV4 (R BLACK 1)
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

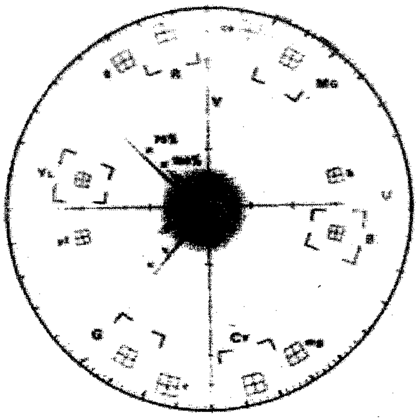
VA-132 BOARD (COMPONENT SIDE)

5.
   - To be extended: PR-179 board
   - Adjust the ⊘ RV9 (G PED)/PR-179 board so that the DC level "A" at TEST OUT connector is 20 ± 5 mV.

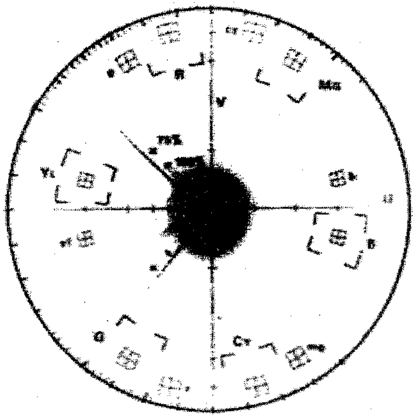


6. ENC/RGB switch (side panel) → "ENC"

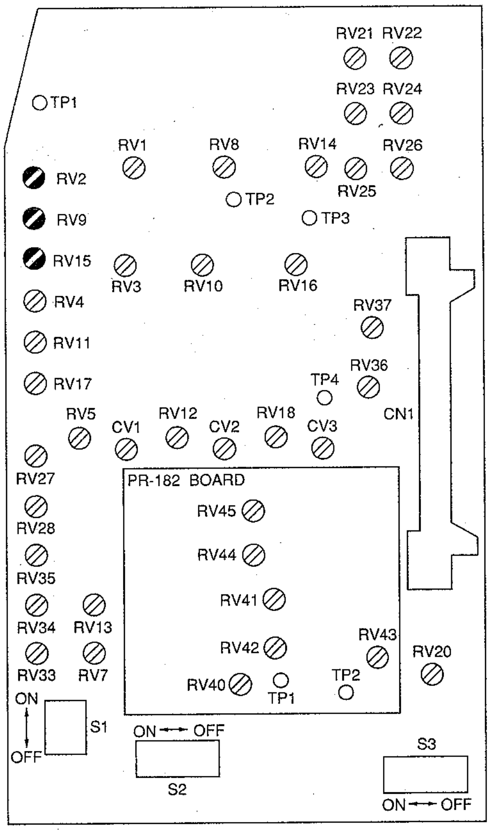
7. Adjust the ⊘RV2 and ⊘RV15 on the PR-179 board so that the beam spot should be positioned in the center of the vectorscope screen.



8. GAIN switch(side panel) → "9 dB"
9. •To be extended: VA-132 board
   •Adjust the ⊘RV55 (R BLK SET 1) and ⊘RV57 (B BLK SET 1) on the VA-132 board so that the beam spot should be positioned in the center of the vectorscope screen.

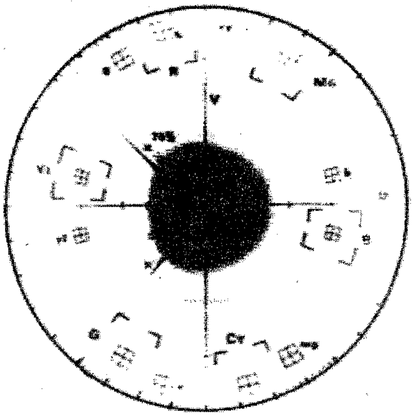


10. GAIN switch (side panel) → "18 dB"


RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
RV17
TP4
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34 RV13
RV42
RV43
RV20
RV33 RV7
RV40
TP1
TP2
ON
OFF
S1
ON ← → OFF
S2
S3
ON ← → OFF

PR-179 BOARD (COMPONENT SIDE)

11. Adjust the ⊘RV52 (R BLK SET 2) and ⊘RV54 (B BLK SET 2) on the VA-132 board so that beam spot should be positioned in the center of the vectorscope screen.



12. Repeat item 7 to 11 so as to center the beam spot on the vectorscope, even if the GAIN switch (side panel) is set to "0 dB", "9 dB" or "18 dB".

Note:
After this adjustment is complete, set the switch as follows.
- GAIN switch (side panel) → "0 dB"

STEP 3-16. Flare adjustment

Note:

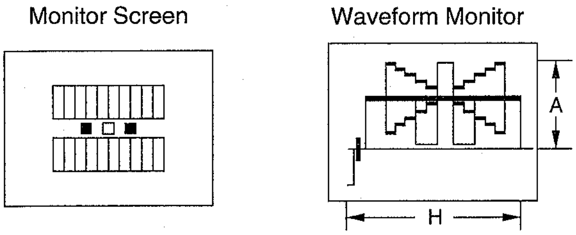
- Repeat carrying out this adjustment after STEP 3-15. Black set and Pedestal adjustment is carried out three or four times.

Equipment: Waveform monitor

Preparation:

- ENC/RGB switch (side panel) ⟶ "ENC"
- ⊘RV9, ⊘RV19, ⊘RV29/VA-132 board ⟶mechanical center
- GAIN switch (side panel) ⟶ "0 dB"
- OUTPUT/DCC switch (side panel) ⟶ "DCC ON"

Object:


Monitor Screen
Waveform Monitor

Lens Zoom: Underscanned picture frame on the monitor screen = chart frame

Lens iris: A = 700 ± 10 mV
(at TEST OUT connector)

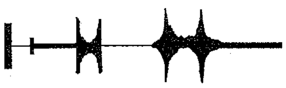
Test point: TEST OUT connector

Adjust point: ⊘ RV9 (R FLR)/VA-132 board
⊘ RV19 (G FLR)/VA-132 board
⊘ RV29 (B FLR)/VA-132 board

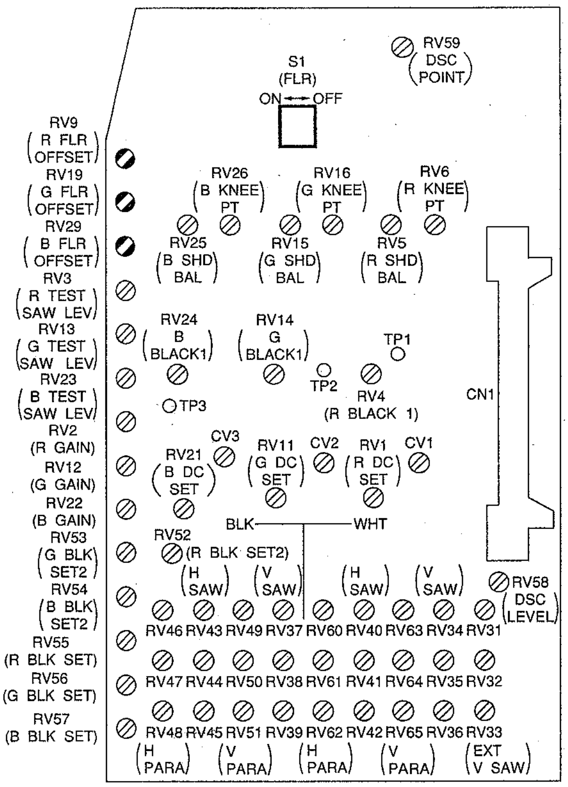
Specification: mentioned below

Adjustment procedures:

1. Open the diaphragm by an aperture opening of 1 greater than the standard value. (A=700±10 mV)
2. Adjust the 15 LINE SELECT of the wave monitor at the center of the monitor screen.

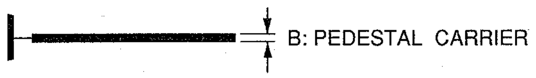

15 LINE SELECT

3. ENC/RGB switch (side panel) ⟶ "RGB"
4. R/G/B switch (side panel) ⟶ "G"
5. S1 (FLR)/VA-132 board → "OFF"
6. Select a channel (except G channel) which has the lowest black level by R/G/B switch on the side of the camera.


S1
(FLR)
ON ⟷ OFF
RV59 (DSC POINT)
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
TP3
RV4 (R BLACK 1)
CN1
CV3
RV21 (B DC SET)
RV11 (G DC SET)
CV2
RV1 (R DC SET)
CV1
BLK
WHT
RV52 (R BLK SET2)
(H SAW) (V SAW) (H SAW) (V SAW)
RV58 (DSC LEVEL)
RV46 RV43 RV49 RV37 RV60 RV40 RV63 RV34 RV31
RV47 RV44 RV50 RV38 RV61 RV41 RV64 RV35 RV32
RV48 RV45 RV51 RV39 RV62 RV42 RV65 RV36 RV33
(H PARA) (V PARA) (H PARA) (V PARA) (EXT V SAW)

VA-132 BOARD (COMPONENT SIDE)

7. Adjust the selected VR control so that the black level does not fluctuate even when S1 switch on the VA-132 board is turned ON or OFF.
8. ENC/RGB switch (side panel) ⟶ "ENC"
9. Adjust the other channels' FLR VR controls (see below) to minimize carrer leakage so that they match the black level of the channel checked in procedure 7.
10. Iris Control ⟶ Close "C"
11. Adjust the FLR VR controls of the channels that were adjusted in procedure 9 to minimize the pedestal carrier B.


B: PEDESTAL CARRIER

12. Take a picture of a gray scale chart with a specified picture frame and open the Iris Control by an aperture opening of 1.5 greater than the standard value (700 ± 10 mV).
13. Repeat procedure 7 through 9 until "B≦14 mV" is met.

STEP5 (the lowest black level)	STEP7	STEP9, 11
B-ch	⊘RV29	⊘RV9, ⊘RV19
R-ch	⊘RV9	⊘RV19, ⊘RV29

STEP 3-17. RGB Video Level adjustment

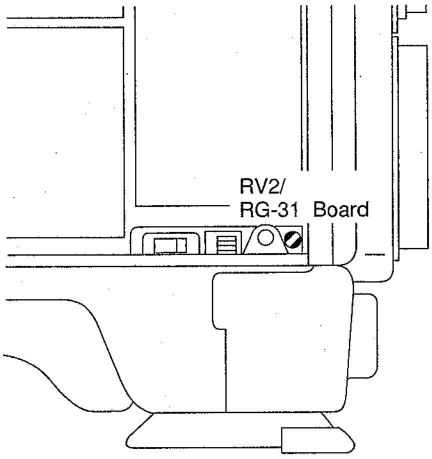
Equipment: Waveform monitor

Preparation:
- ENC/RGB switch (side panel) → "RGB"
- R/G/B switch (side panel) → "G"
- S7 (TEST)/SG-206P board → "ON"
- S3 (WHT CLIP)/PR-179 board → "OFF"

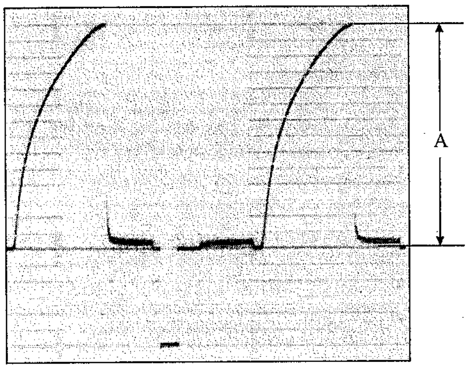
Test point: TEST OUT connector

Adjust point: ⊘ RV2/RG-31 board

Specification: A = 700 ± 10 mV



Adjustment procedures:



Note:
After this adjustment is complete, set the switch as follows.
- S7 (TEST)/SG-206P board→"OFF"
- S3 (WHT CLIP)/PR-179 board→"ON"

STEP 3-18. Color bar adjustment

Equipment: Oscilloscope, Waveform monitor

To be extended: EN-107P board

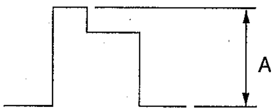
Preparation:

- ENC/RGB switch (side panel)→"ENC"
- OUTPUT/DCC switch (side panel) → "BARS/OFF"
- S3 (WHT CLIP)/PR-179 board → "OFF"

Test point: TEST OUT connector

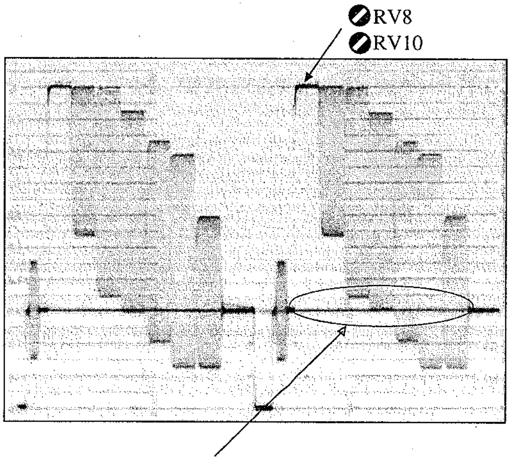
Adjustment procedures

1. G-ch level adjustment
   - Test point: TP18 (GND: TP11)/extension board
   - ⊘ RV9/EN-107P board: A=700±5 mV

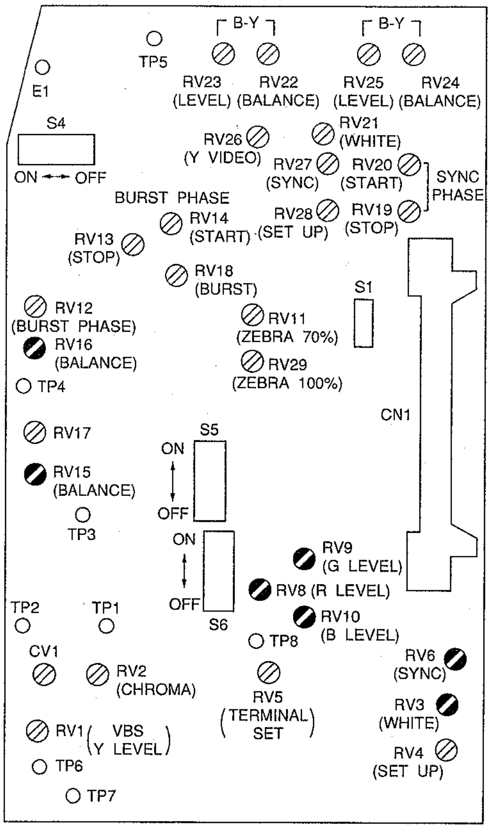


2. BARS level adjustment
   - ENC/RGB switch (side panel) →"ENC"

Minimize the carrier leakage
⊘RV8
⊘RV10

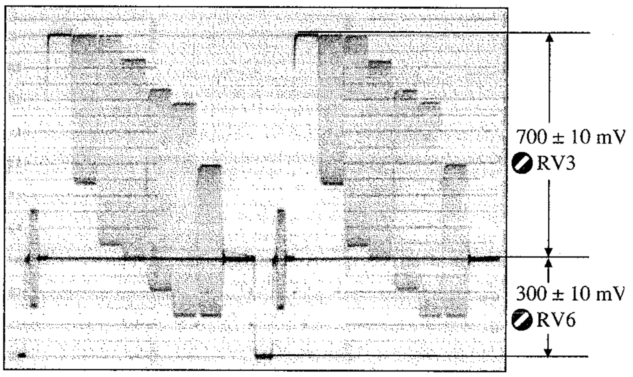


⊘RV15, ⊘RV16: Minimize the carrier leak.


TP5
B-Y
B-Y
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ←→ OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
RV15 (BALANCE)
TP3
OFF
ON
RV9 (G LEVEL)
RV8 (R LEVEL)
TP2
TP1
OFF
S6
RV10 (B LEVEL)
TP8
CV1
RV2 (CHROMA)
RV6 (SYNC)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
RV4 (SET UP)
TP6
TP7

EN-107P BOARD (COMPONENT SIDE)

3. WHITE and SYNC level adjustments



STEP 3-19. EN Y Level adjustment

Equipment: Waveform monitor

To be extended: EN-107P board

Trigger:

Preparation:
- ENC/RGB switch (side panel) → "ENC"
- S7 (TEST)/SG-206P board → "ON"
- S3 (WHT CLIP)/PR-179 board → "OFF"

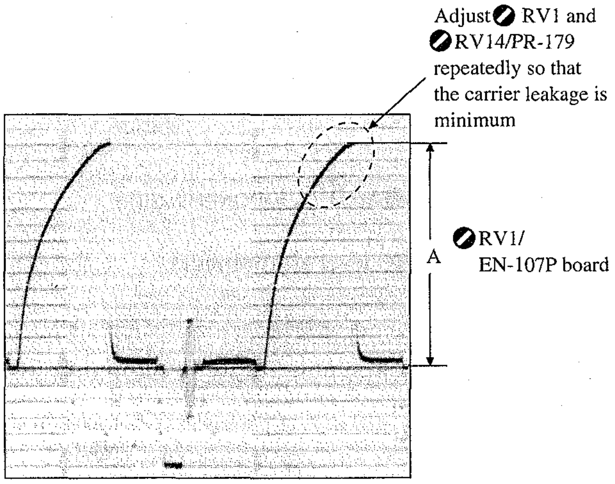
Test point: TEST OUT connector

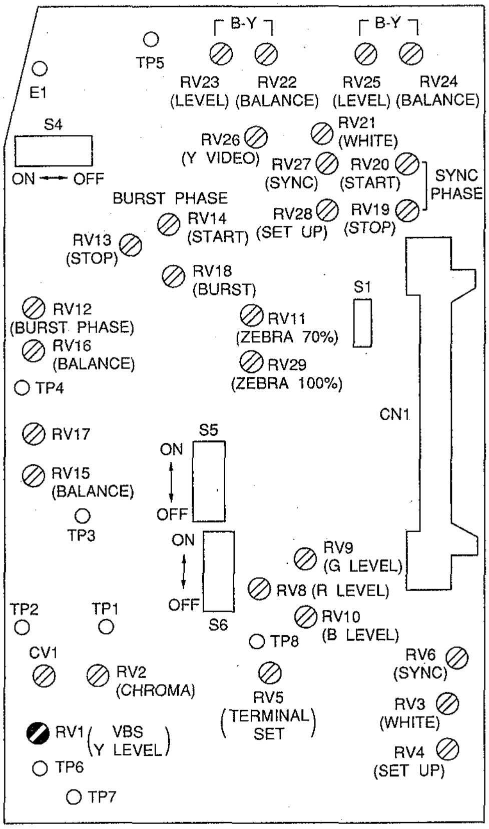
Adjust point: ⊘RV1 (VBS Y)/EN-107P board

Specification: VBS Y = 700 ± 10 mV

Adjustment procedures

1. Adjust ⊘RV1/EN-107P board repeatedly so that the test signal level "A" is 700±10 mV




B-Y
B-Y
TP5
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ↔ OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
OFF
RV15 (BALANCE)
TP3
ON
OFF
S6
RV9 (G LEVEL)
RV8 (R LEVEL)
TP2
TP1
RV10 (B LEVEL)
TP8
CV1
RV2 (CHROMA)
RV6 (SYNC)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
TP6
RV4 (SET UP)
TP7

EN-107P BOARD (COMPONENT SIDE)

Note:

After this adjustment is complete, set the switch as follows.
- S7 (TEST)/SG-206P board→"OFF"
- S3 (WHT CLIP)/RP-179 board→"ON"

STEP 3-20. VU Gain adjustment

Equipment: Vectorscope

To be extended: EN-107P board

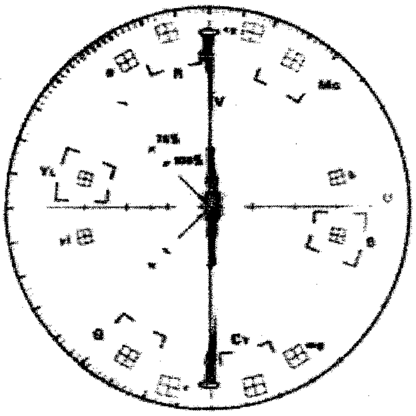
Preparation:

- OUTPUT/DCC switch (side panel)→"BARS/OFF"
- S4 (V)/EN-107P board → "ON"
- S5 (U)/EN-107P board → "OFF"

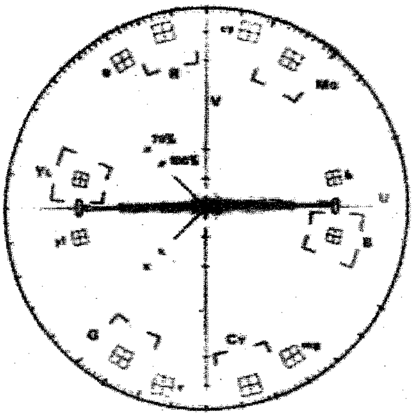
Test point: TEST OUT connector

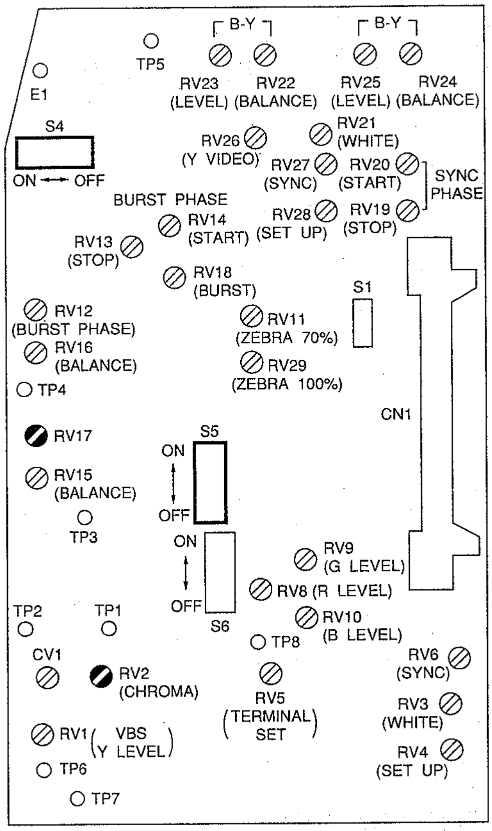
Adjustment procedures:

1. Adjust the PHASE control of the vectorscope so that the V signal is overlapped with V axis on the vectorscope screen.
2. Adjust ⊘RV2/EN-107P board so that the beam spots at both ends of the V signal should be positioned on the specified point of the V axis.



3. S4 (V)/EN-107P board → "OFF"
   S5 (U)/EN-107P board → "ON"
4. Adjust the PHASE control of the vectorscope so that the U signal is overlapped with the U axis on the vectorscope screen.
5. Adjust ⊘ RV17/EN-107P board so that the beam spots at both ends of the U signal should be positioned on the specified point on the U axis.





TP5
E1
B-Y
B-Y
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ←→ OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV16 (BALANCE)
RV11 (ZEBRA 70%)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
OFF
RV15 (BALANCE)
TP3
ON
OFF
S6
RV9 (G LEVEL)
RV8 (R LEVEL)
RV10 (B LEVEL)
TP2
TP1
TP8
CV1
RV2 (CHROMA)
RV6 (SYNC)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
RV4 (SET UP)
TP6
TP7

EN-107P BOARD (COMPONENT SIDE)

STEP 3-21. Burst adjustment

Equipment: Vectorscope

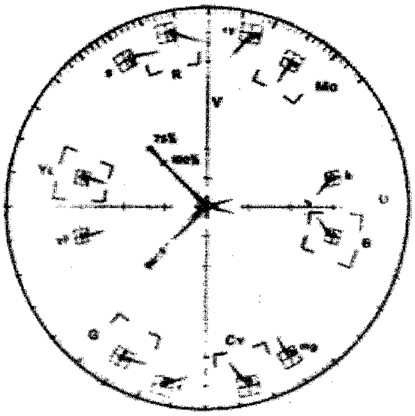
To be extended: EN-107P board

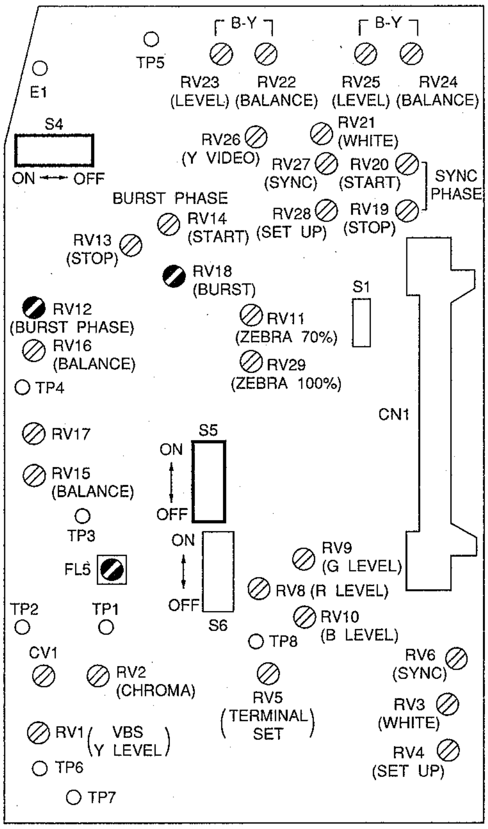
Preparation:
- OUTPUT/DCC switch (side panel) →"BARS/OFF"
- S4 (V)/EN-107P board → "ON"
- S5 (U)/EN-107P board → "OFF"

Test point: TEST OUT connector

Adjust point:
⊘ RV18 (BURST LEVEL)/EN-107P board
⊘ RV12 (BURST PHASE)/EN-107P board
⊘ FL5 (SC PHASE)/EN-107P board

Adjustment procedures:
1. Adjust the PHASE control of the vectorscope so that the burst spot is overlapped with 75% scale on the vectorscope.
2. Adjust the PHASE control of the vectorscope, ⊘ RV18 (BURST LEVEL), ⊘ RV12 (BURST PHASE) and ⊘ FL5 (SC PHASE)/EN-107P board so that the beam spot of the burst signal is overlapped with the 75% scale on the vectorscope.




TP5
B-Y
B-Y
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ← → OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
OFF
RV15 (BALANCE)
TP3
ON
OFF
RV9 (G LEVEL)
FL5
RV8 (R LEVEL)
TP2
TP1
S6
RV10 (B LEVEL)
TP8
CV1
RV6 (SYNC)
RV2 (CHROMA)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
TP6
RV4 (SET UP)
TP7

EN-107P BOARD (COMPONENT SIDE)

Note:
After this adjustment is complete, set the switch as follows.
- S5 (U) switch/EN-107P board →ON"

STEP 3-22. VTR Y/Y SYNC Level adjustment

Note:

- Be sure to connect the camera adaptor.

Equipment: Oscilloscope

To be extended: EN-107P board

Trigger: HD (TP22/extension board)

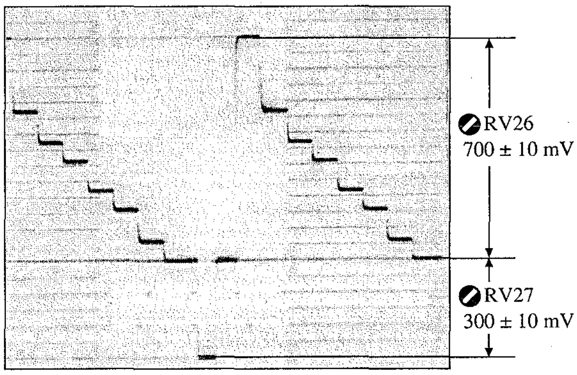
Preparation:

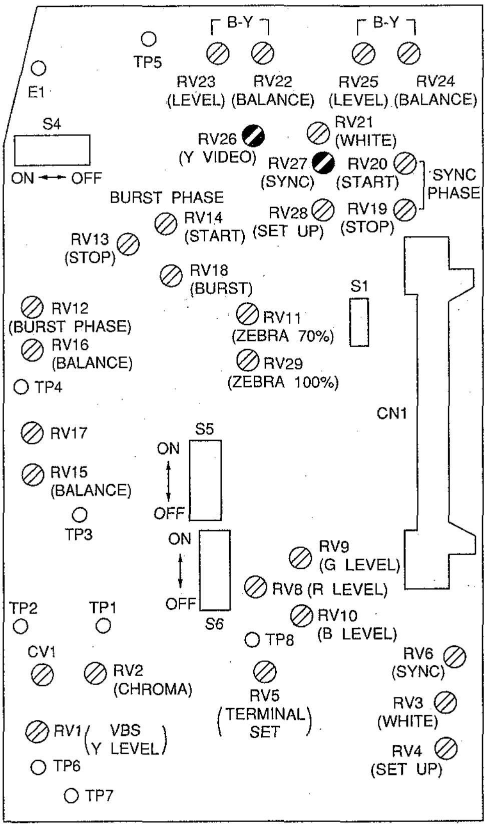
- OUTPUT/DCC switch (side panel)→"BARS/OFF"

Test point: TP8/extension board

Adjustment procedures:

1. WHITE and SYNC Level adjustment




TP5
B-Y
B-Y
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ↔ OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
OFF
RV15 (BALANCE)
TP3
ON
OFF
S6
RV9 (G LEVEL)
RV8 (R LEVEL)
TP2
TP1
RV10 (B LEVEL)
TP8
CV1
RV6 (SYNC)
RV2 (CHROMA)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
RV4 (SET UP)
TP6
TP7

EN-107P BOARD (COMPONENT SIDE)

STEP 3-23. VTR R-Y/B-Y Level adjustment

Note:

- Be sure to connect the camera adaptor.

Equipment: Oscilloscope

To be extended: EN-107P board

Trigger: HD (TP22/extension board)

Preparation:

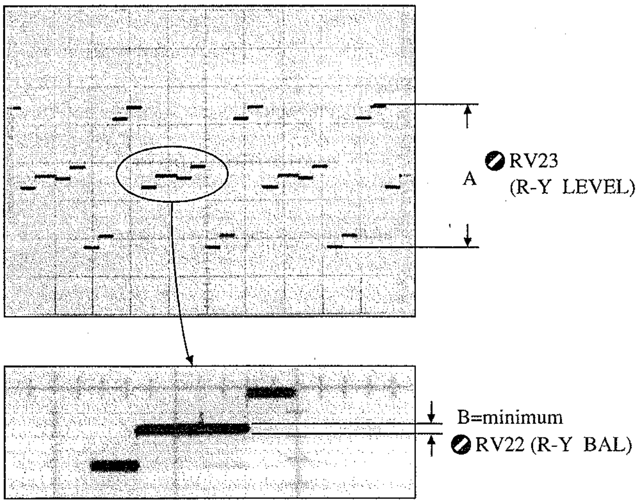
- OUTPUT/DCC switch (side panel)→"BARS/OFF"

Adjustment procedures:

1. **Test point:** TP9/extension board

   Adjust point: ⊘RV23, ⊘RV22 /EN-107P board

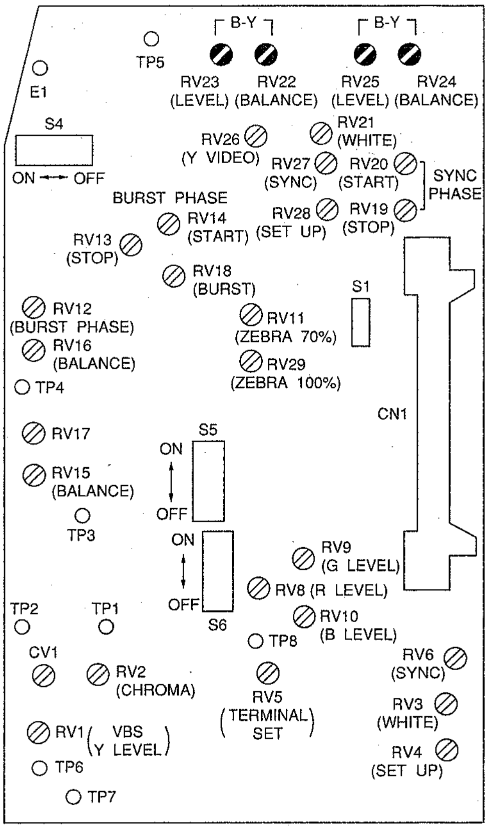
   Specification: A = 525 ± 5 mVp-p



2. **Test point:** TP10/extension board

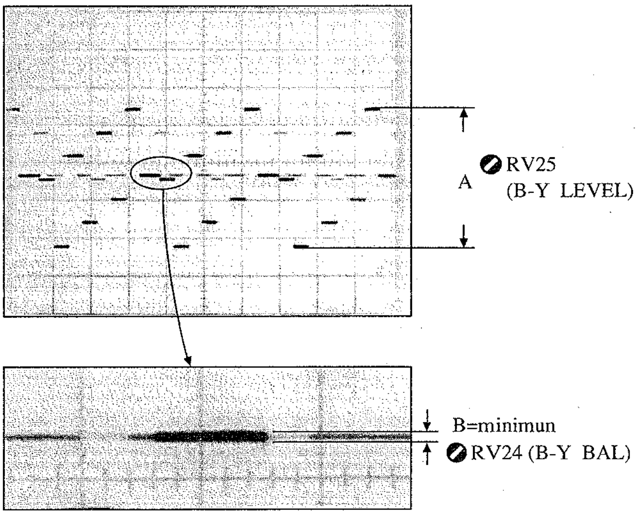
   Adjust point: ⊘RV25, ⊘RV24/EN-107P board

   Specification: A= 525 ± 5 mVp-p



B-Y
B-Y
TP5
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ←→ OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
OFF
RV15 (BALANCE)
TP3
ON
OFF
S6
RV9 (G LEVEL)
RV8 (R LEVEL)
TP2
TP1
RV10 (B LEVEL)
TP8
CV1
RV2 (CHROMA)
RV6 (SYNC)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
RV4 (SET UP)
TP6
TP7

EN-107P BOARD (COMPONENT SIDE)



Note:

Since following controls are related to each other, repeat the procedures of 1 and 2 by turns several times.

⊘RV22 ↔ ⊘RV23/EN-107P board
⊘RV24 ↔ ⊘RV25/EN-107P board

After this adjustment is complete, set the switch as follows.

- OUTPUT/DCC switch (side panel)→"CAM/OFF"

STEP 3-24. Zebra Level adjustment

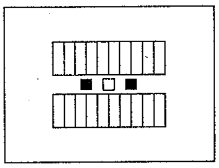
Equipment: Waveform monitor

To be extended: EN-107P board

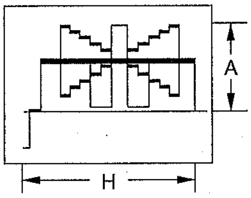
Preparation:
- ENC/RGB switch (side panel)→"ENC"
- TALLY/ZEBRA ON/OFF switch (viewfinder)→"ZEBRA"

Object: Gray scale chart

Monitor Screen



Waveform Monitor

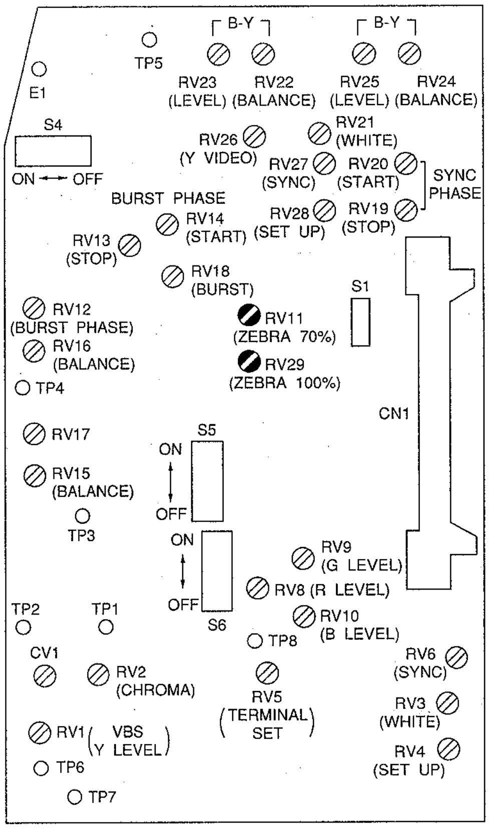


Lens Zoom: Underscanned picture frame on the monitor = chart frame

Lens iris: A = 700 ± 10 mV (at TEST OUT connector)

Test point: Viewfinder

Adjust point: ⊘RV11/EN-107P board
⊘RV29/EN-107P board

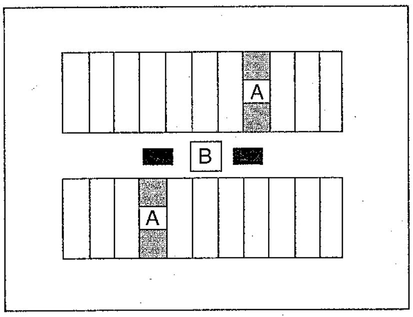

B-Y
B-Y
TP5
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ←→ OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
RV15 (BALANCE)
OFF
TP3
ON
RV9 (G LEVEL)
RV8 (R LEVEL)
TP2
TP1
OFF
S6
RV10 (B LEVEL)
TP8
CV1
RV2 (CHROMA)
RV6 (SYNC)
RV5 (TERMINAL SET)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
RV4 (SET UP)
TP6
TP7

EN-107P BOARD (COMPONENT SIDE)

Adjustment procedures:

1. Adjust ⊘RV11 (ZEBRA)/EN-107P board so that the zebra pattern appears in the center of portion A of the VF screen as shown below.
2. Turn ⊘RV29/EN-107P board and stop where the zebra pattern is just started to be appeared in the portion "B".

VF Screen



STEP 3-25. Gamma correction adjustment

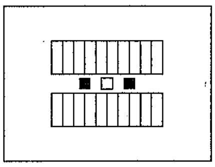
Equipment: Waveform monitor

To be extended: PR-179 board

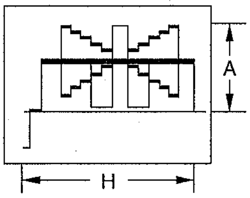
Preparation:
- ENC/RGB switch (side panel)→"RGB"
- R/G/B switch (side panel)→"G"
- S3 (WHT CLIP)/PR-179 board→"OFF"
- S2 (γ ON/OFF)/PR-179 board→"ON"

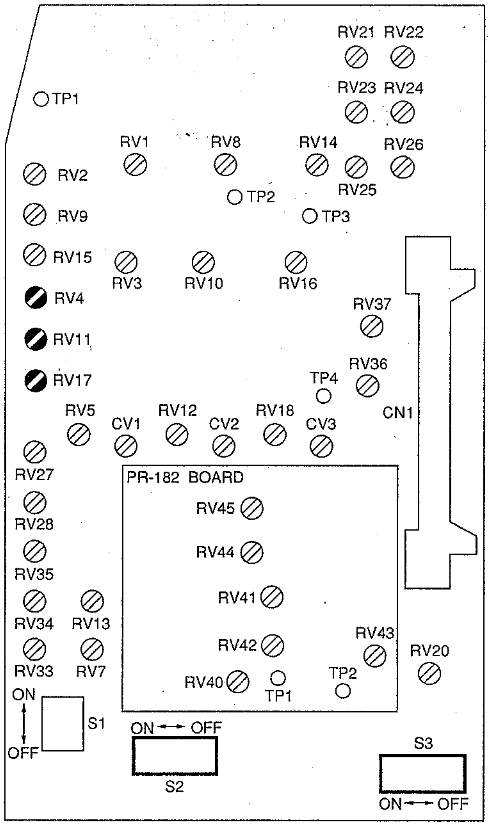
Object: Gray scale chart

Monitor Screen



Waveform Monitor




RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
RV17
TP4
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34
RV13
RV43
RV42
RV20
RV33
RV7
RV40
TP1
TP2
ON
OFF
S1
ON ← → OFF
S2
S3
ON ← → OFF

PR-179 BOARD (COMPONENT SIDE)

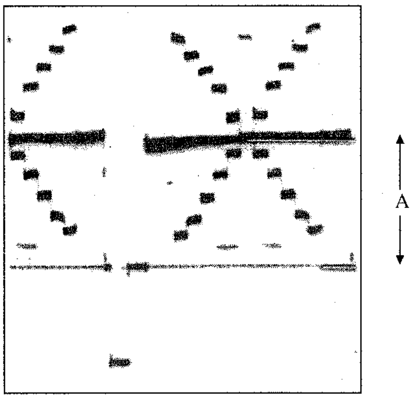
Lens Zoom: Underscanned picture frame on the monitor = chart frame

Lens iris: A = 700 ± 10 mV (at TEST OUT connector)

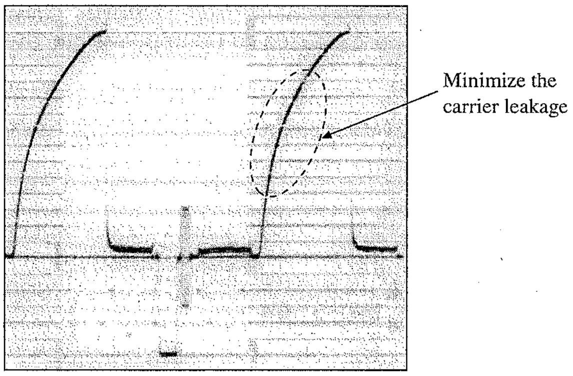
Test point: TEST OUT connector

Adjustment procedures:

1. Adjust the ⊘ RV11 (Gγ)/PR-179 board so that the cross point "A" at gray scale is 420 ± 20 mV.



2. ENC/RGB switch (side panel)→"ENC"
   S7 (TEST)/SG-206P board→"ON"
3. Adjust the ⊘ RV4 and ⊘ RV17/PR-179 board to minimize the carrier leakage.


Minimize the carrier leakage

STEP 3-26. Manual Knee adjustment

Equipment: Waveform monitor

To be extended: PR-179 board

Trigger: CP (TP30/extension board)

Preparation:

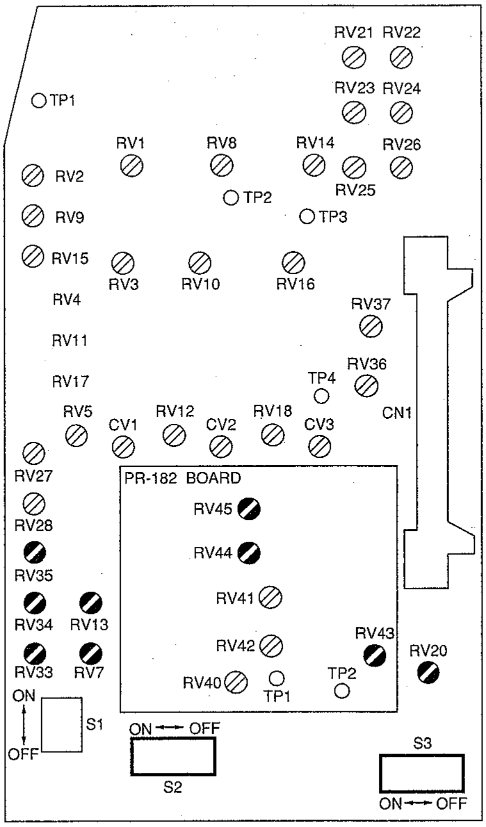
- ENC/RGB switch (side panel)→"RGB"
- GAIN switch (side panel)→"9 dB"
- OUTPUT/DCC switch (side panel)→"CAM/OFF"
- R/G/B switch (side panel)→"OFF"
- S7 (TEST)/SG-206P board→"ON"
- S2 (γ ON/OFF)/PR-179 board→"ON"
- S3 (WHT CLIP)/PR-179 board→"ON"
- ⊘RV44/PR-182 board→mechanical center
- ⊘RV45/PR-182board→mechanical center
- ⊘RV7/PR-179 board→fully clockwise ↻
- ⊘RV13/PR-179 board→fully clockwise ↻
- ⊘RV20/PR-179 board→fully clockwise ↻
- ⊘RV35/PR-179 board→fully counterclockwise ↺
- ⊘RV34/PR-179 board→fully counterclockwise ↺
- ⊘RV33/PR-179 board→fully counterclockwise ↺

Test point: mentioned below

Adjustment procedures:

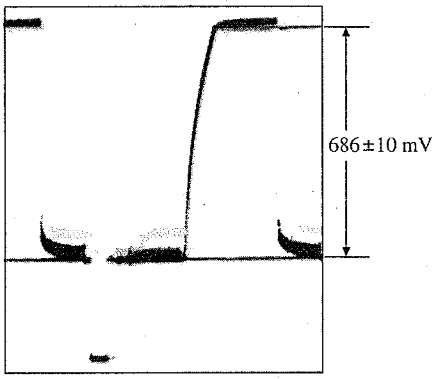
The adjustment values mentioned in the following adjustment apply for the white clip level set to 770 mV. If you want to operate with a white clip level other than 770 mV, adjust the KNEE POINT, KNEE SLOPE, and WHITE CLIP LEVEL following the list below.

White clip level \ Measuring point	770 mV	750mV	735 mV	720 mV
MANUAL KNEE POINT ⊘RV43/PR-182	686 mV	686 mV	670 mV	670 mV
KNEE SLOPE ⊘RV13/PR-179	777 mV	770 mV	749 mV	749 mV
WHITE CLIP ⊘RV34/PR-179	770 mV	750 mV	735 mV	720 mV


RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
RV17
TP4
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34
RV13
RV43
RV42
RV20
RV33
RV7
RV40
TP1
TP2
ON
S1
OFF
ON ← OFF
S2
S3
ON ← OFF

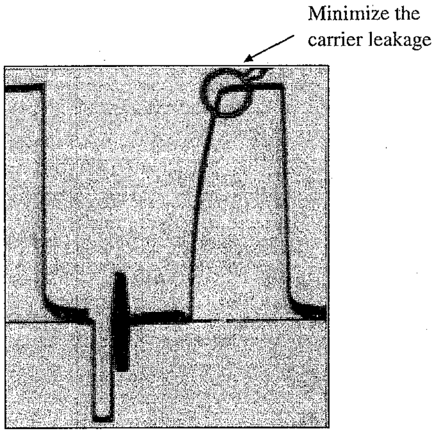
PR-179 BOARD (COMPONENT SIDE)

Adjust ⊘RV43 (MANU POINT)/PR-182 board so that the knee point level at TEST OUT connector is 686± 10 mV.



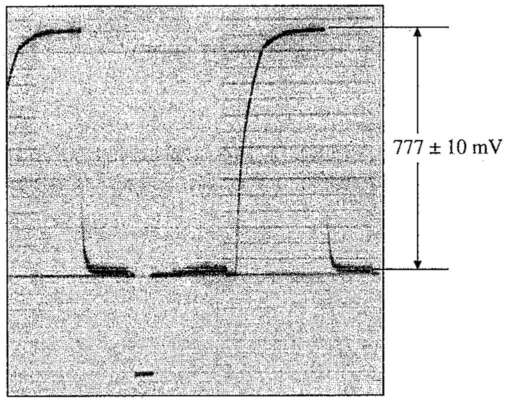
2. ENC/RGB switch (side panel)→"ENC"

3. Adjust ⊘RV44 (R POINT) and ⊘RV45 (B POINT) /PR-182 board so that the carrier leakage at the knee point of the TEST SAW waveform is minimized.



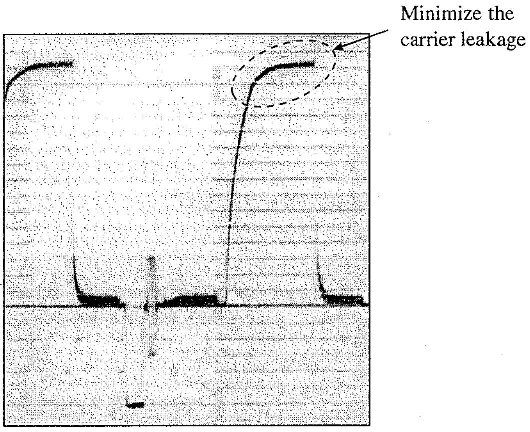
4. ENC/RGB switch (side panel)→"RGB"
G/OFF switch (side panel)→"G"

5. Adjust ⊘RV13 (G SLOPE)/PR-179 board so that the peak level of the TEST SAW waveform is 777 ± 10 mV.



6. ENC/RGB switch (side panel)→"ENC"

7. Adjust ⊘RV7 (R SLOPE) and ⊘RV20 (B SLOPE) /PR-179 board so that the carrier leakage of the TEST SAW waveform is minimized.



STEP 3-27. Automatic Knee and white clip adjustment

Note:

- Be sure to complete STEP 3-26. Manual knee adjustment.

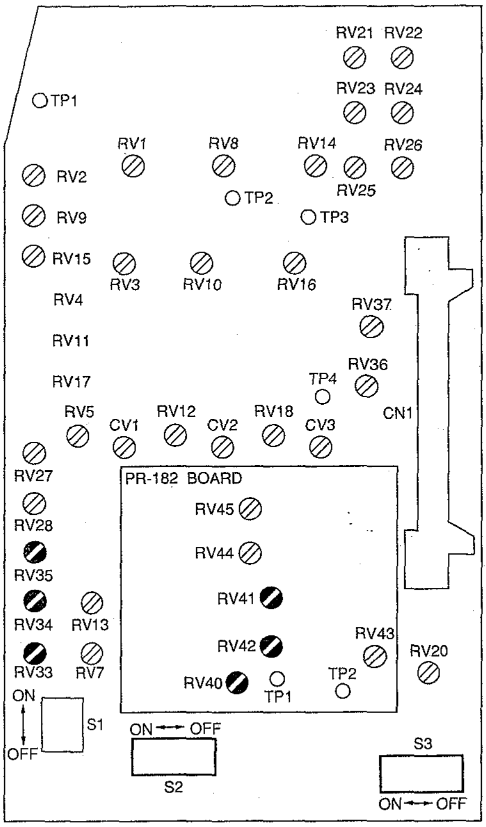
Equipment: Oscilloscope (DC mode), Waveform monitor

To be extended: PR-179 board

Trigger: CP (TP30/extension board)

Preparation:

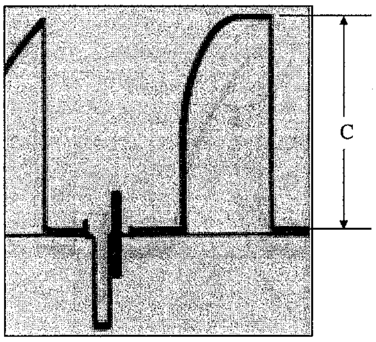
- R/G/B switch (side panel)→"G"
- GAIN switch (side panel)→"18 dB"
- OUTPUT/DCC switch (side panel)→"DCC-ON"
- S7 (TEST) /SG-206P board→"ON"
- S2 (γ ON/OFF)/PR-179 board→"ON"
- S3 (WHT CLIP)/PR-179 board→"ON"
- ⊘RV42 (AUTO LIMIT)/PR-182 board →mechanical center
- ⊘RV41 (AUTO START)/PR-182 board →fully counterclockwise ↺
- ⊘RV40 (AUTO GAIN)/PR-182 board →fully counterclockwise ↺


RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
RV17
TP4
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34
RV13
RV42
RV43
RV20
RV33
RV7
RV40
TP1
TP2
ON
S1
OFF
ON OFF
S2
S3
ON OFF

PR-179 BOARD (COMPONENT SIDE)

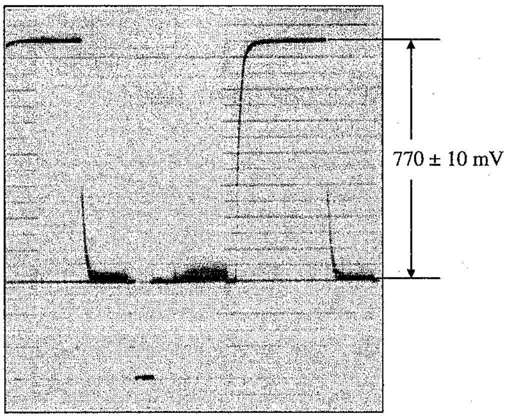
Adjustment procedures:

1. Test point: Video out connector
   Adj. point: ⊘RV40/PR-182 board
   Spec. C=763±10 mV



2. • S7 (TEST)/SG-206P board→"OFF"
   Lens iris: Close "C"
   Test point: TP2 PR-182 board
   Adj. point: ⊘RV41/PR-182 board
   Spec. DC=1.15 V dc

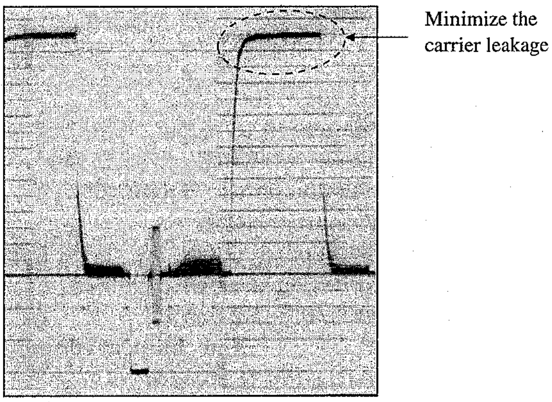
3. ENC/RGB switch (side panel)→"RGB"
   R/G/B switch (side panel)→"G"
   GAIN switch (side panel)→"18 dB"
   DCC switch (side panel) →"OFF"



4. Adjust ⊘ RV34 (G WHT CLIP)/PR-179 board so that the TEST SAW waveform clips at 770 ± 10 mV.

5. ENC/RGB switch (side panel)→"ENC"

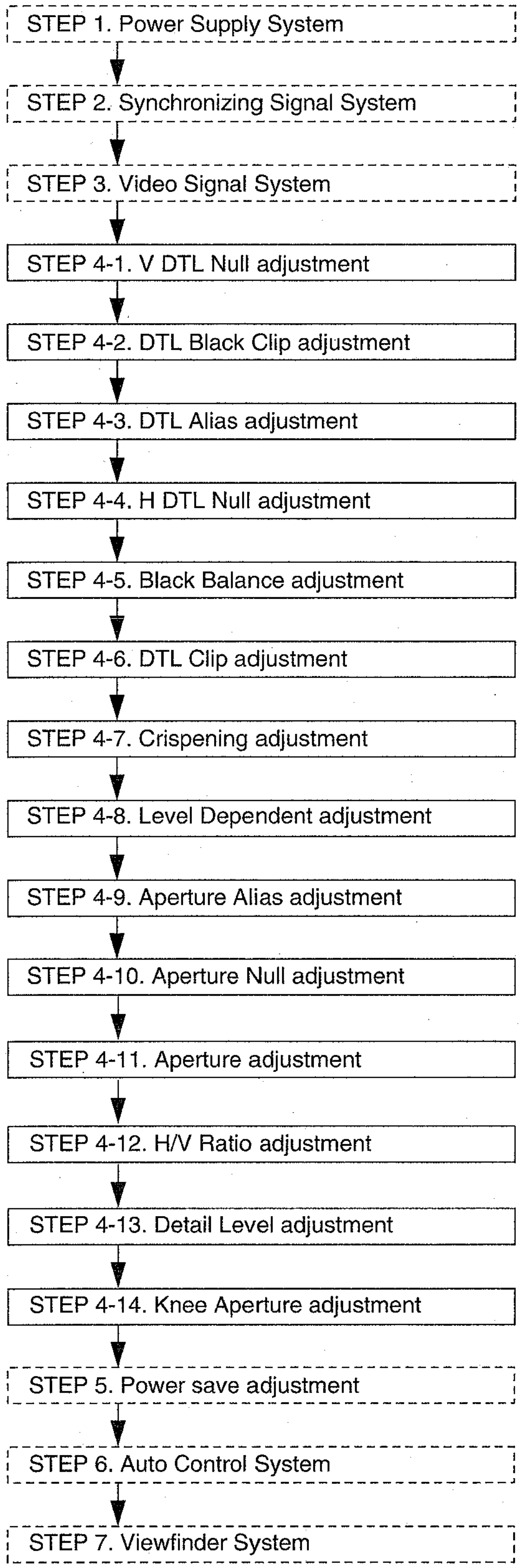
6. Adjust ⊘ RV35 (R WHT CLIP) and ⊘ RV33 (B WHT CLIP)/PR-179 board so that the carrier leakage of the TEST SAW waveform is minimized.



Note:
After this adjustment is complete, set the switch as follows.

- OUTPUT/DCC switch (side panel)→"CAM/OFF"
- GAIN switch (side panel)→"0 dB"
- S7 (TEST)/SG-206P board→"OFF"

STEP 4. IMAGE ENHANCER SYSTEM


STEP 1. Power Supply System
STEP 2. Synchronizing Signal System
STEP 3. Video Signal System
STEP 4-1. V DTL Null adjustment
STEP 4-2. DTL Black Clip adjustment
STEP 4-3. DTL Alias adjustment
STEP 4-4. H DTL Null adjustment
STEP 4-5. Black Balance adjustment
STEP 4-6. DTL Clip adjustment
STEP 4-7. Crispening adjustment
STEP 4-8. Level Dependent adjustment
STEP 4-9. Aperture Alias adjustment
STEP 4-10. Aperture Null adjustment
STEP 4-11. Aperture adjustment
STEP 4-12. H/V Ratio adjustment
STEP 4-13. Detail Level adjustment
STEP 4-14. Knee Aperture adjustment
STEP 5. Power save adjustment
STEP 6. Auto Control System
STEP 7. Viewfinder System

STEP 4-1. V DTL Null adjustment

Equipment: Oscilloscope, Waveform monitor

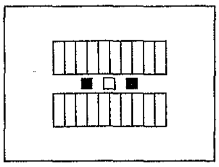
To be extended: IE-39P board

Trigger: TP36/extension board

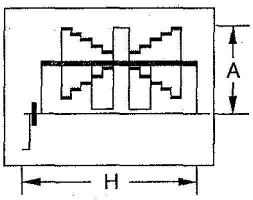
Preparation:
- ENC/RGB switch (side panel)→"ENC"
- S1 (DTL)/IE-39P board→"ON"

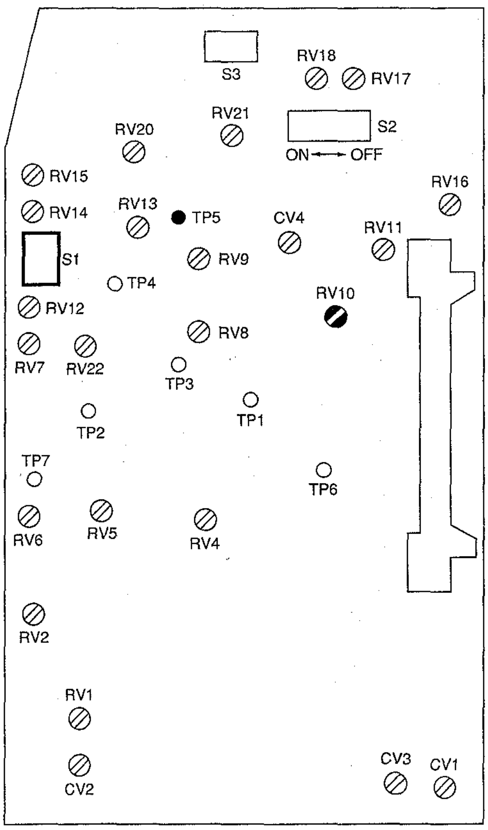
Object: Gray scale chart

Monitor Screen



Waveform Monitor




S3
RV18
RV17
RV21
S2
ON
OFF
RV20
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP2
TP1
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV2
CV3
CV1

IE-39P BOARD (COMPONENT SIDE)

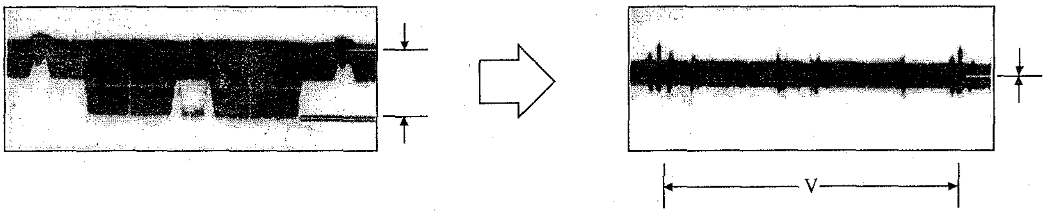
Lens Zoom: Underscanned picture frame on the monitor = chart frame

Lens iris: A = 700 ± 10 mV
(at TEST OUT connector)

Test point: TP5/IE-39P board

Adjust point: ⊘ RV10/IE-39P board

Adjustment procedures:
Adjust the ⊘ RV10/IE-39P board so that the video level is minimum as shown below.



STEP 4-2. DTL Black Clip adjustment

Equipment: Oscilloscope, Waveform monitor

To be extended: IE-39P board

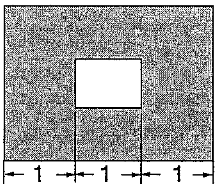
Trigger: TP36/extension board

Preparation:

- ENC/RGB switch (side panel)→"ENC"

Object: White window chart

Monitor Screen



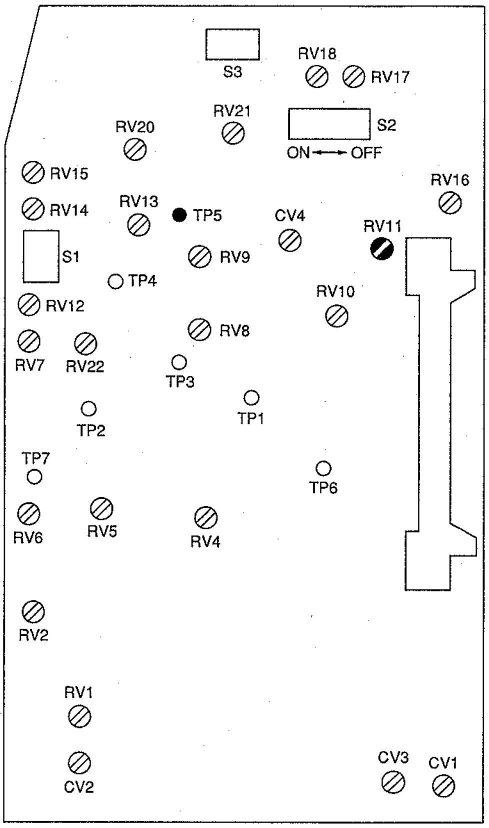
Lens Zoom: Shoot the white window chart as shown above.

Lens iris: Open

Test point: TP5/IE-39P board

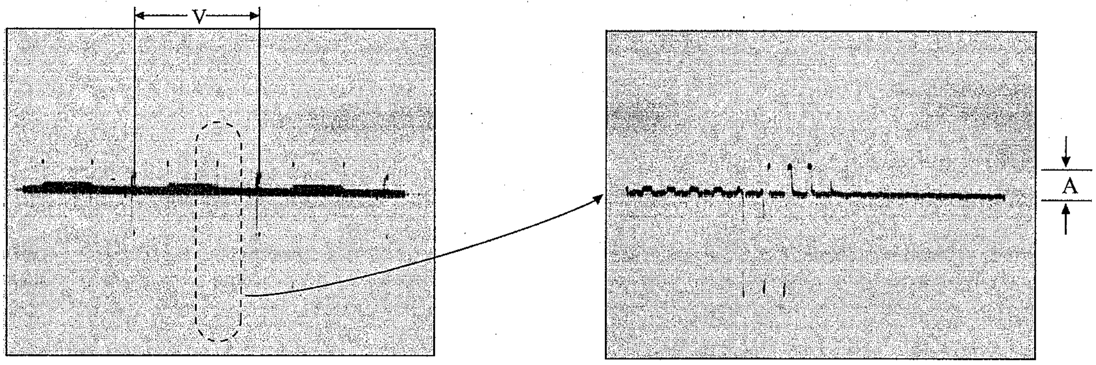
Adjust point: ● RV11/IE-39P board

Specification: A=70 ± 5 mV

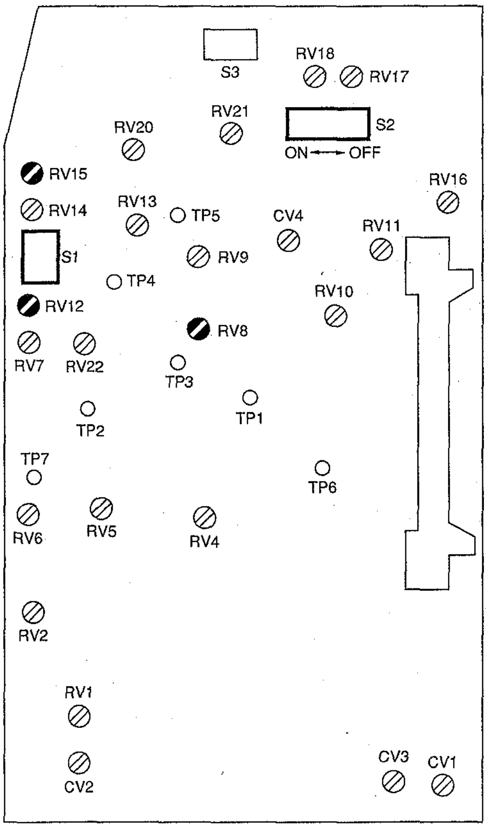

S3
RV18
RV17
RV21
S2
ON OFF
RV20
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP1
TP2
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV2
CV3
CV1

IE-39P BOARD (COMPONENT SIDE)

Adjustment procedures:



STEP 4-3. DTL Alias adjustment


S3
RV18
RV17
RV21
S2
ON OFF
RV20
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP1
TP2
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV2
CV3
CV1

IE-39P BOARD (COMPONENT SIDE)

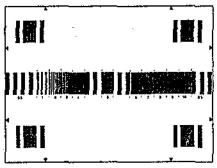
Equipment: Waveform monitor

To be extended: IE-39P board

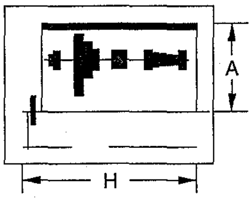
Preparation:
- ENC/RGB switch (side panel)→"ENC"
- S1 (DTL) /IE-39P board→"ON"
- S2 (APERTURE)/IE-39P board→"OFF"
- ⊘ RV15 (DTL)/IE-39P board→fully clockwise ↻
- ⊘ RV12 (H/V RATIO)/IE-39P board →fully clockwise ↻

Object: Burst chart

Monitor Screen



Waveform Monitor



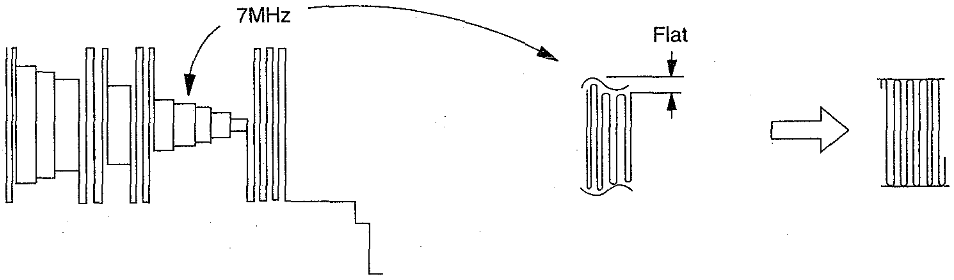
Lens Zoom: Underscanned picture frame on the monitor = chart frame

Lens iris: A = 630 ± 10 mV (at TEST OUT connector)

Test point: TEST OUT connector

Adjust point: ⊘ RV8/IE-39P board

Adjustment procedures:
1. Pan so that the 7 MHz of the burst chart is positioned at center on the monitor screen.
2. Adjust the ⊘ RV8/IE-39P board so that the waveform signal of 7 MHz is flat.



STEP 4-4. H DTL Null adjustment

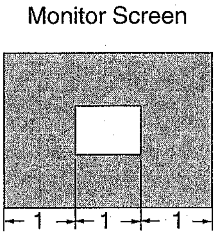
Equipment: Oscilloscope, Waveform monitor

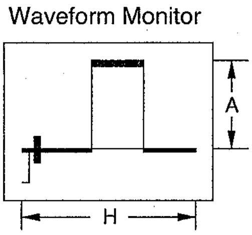
To be extended: IE-39P board

Trigger: TP36/extension board

Preparation:
- ENC/RGB switch (side panel)→"ENC"
- S1 (DTL)/IE-39P board→"ON"
- S2 (APERTURE)/IE-39P board→"OFF"

Object: White window chart


Monitor Screen
1
1
1

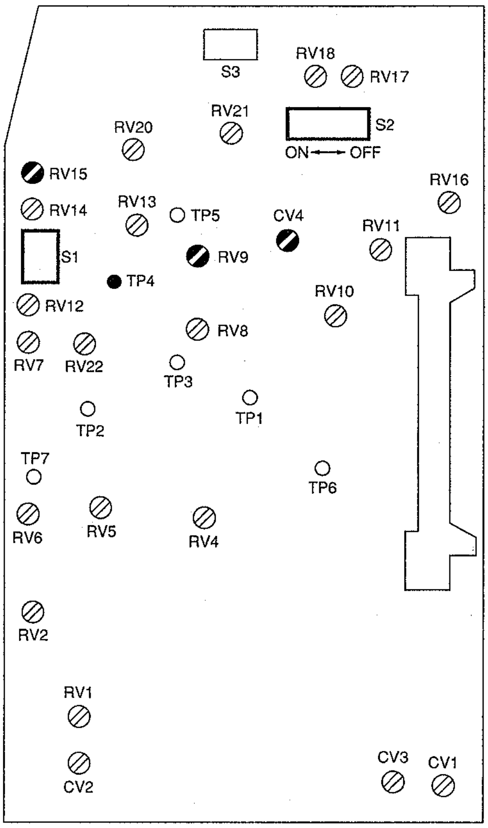

Waveform Monitor
A
H

Lens Zoom: Shoot the white window chart as shown above.

Lens iris: A = 700 ± 10 mV
(at TEST OUT connector)

Test point: TP4/IE-39P board

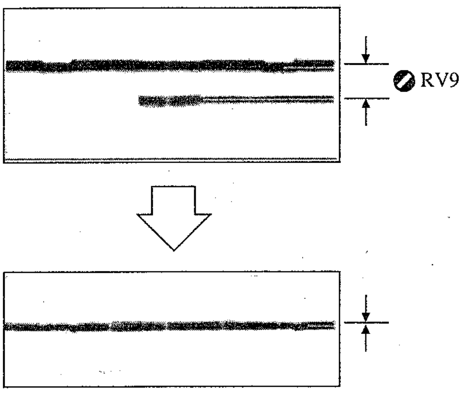
Adjust point: ⊘ RV9/IE-39P board
⊘ CV4/IE-39P board


S3
RV18
RV17
RV21
S2
ON
OFF
RV20
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP1
TP2
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV2
CV3
CV1

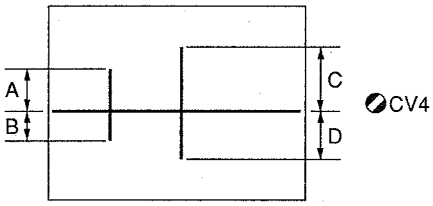
IE-39P BOARD (COMPONENT SIDE)

Adjustment procedures:

1. Adjust the ⊘RV9/IE-39P board so that the white signal is as shown below.



2. ⊘RV15/IE-39P board→Mechanical center
3. Adjust the ⊘CV4/IE-39P board so that the detail signal is as shown below.



A:B=C:D

STEP 4-5 Black Balance adjustment

Equipment: Oscilloscope, Waveform monitor

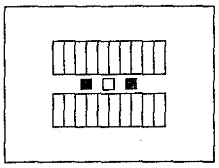
To be extended: IE-39P board

Trigger: TP36/extension board

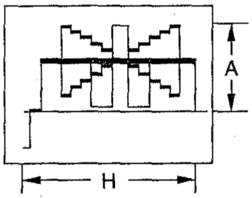
Preparation:
- S1 (DTL)/IE-39P board→"ON"
- S2 (APERTURE)/IE-39P board→"OFF"
- ⊘ RV15 (DTL)/IE-39P board →fully clockwise ↻
- ⊘ RV14 (CRISP)/IE-39P board
  →fully counterclockwise ↺
- ⊘ RV7 (LEV DEP 1)/IE-39P board
  →fully counterclockwise ↺
- ⊘ RV12 (H/V RATIO)/IE-39P board
  →mechanical center
- ⊘ RV22 (LEV DEP 2)/IE-39P board
  →fully clockwise ↻

Object: Gray scale chart

Monitor Screen



Waveform Monitor



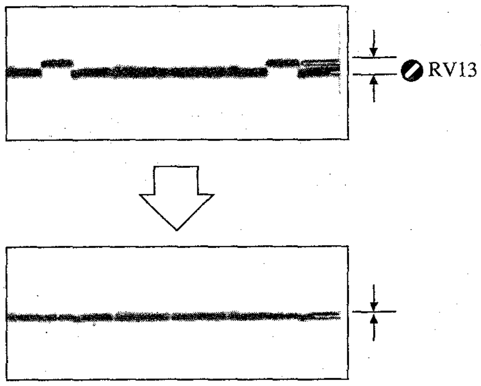
Lens Zoom: Underscanned picture frame on the monitor = chart frame

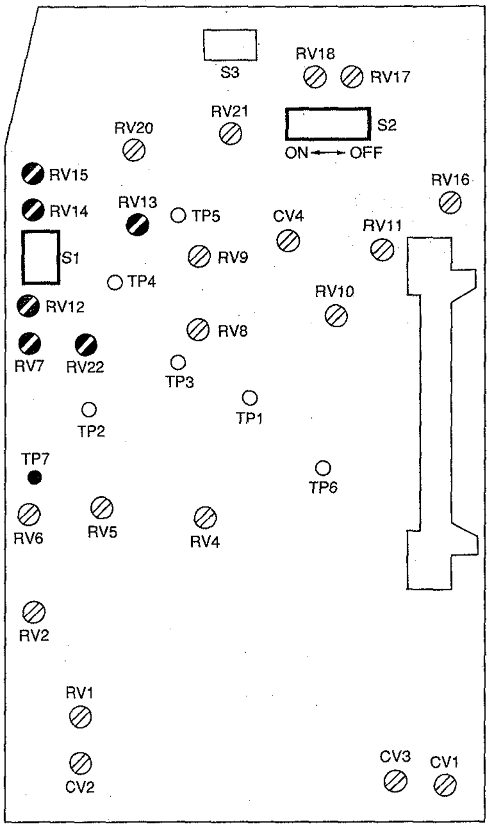
Lens iris: A = 700 ± 10 mV
(at TEST OUT connector)

Test point: TP7/IE-39P board

Adjust point: ⊘ RV13/IE-39P board

Adjustment procedures:




S3
RV18
RV17
RV21
S2
RV20
ON OFF
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP2
TP1
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV3
CV1
CV2

IE-39P BOARD (COMPONENT SIDE)

STEP 4-6 DTL Clip Adjustment

Equipment: Oscilloscope, B/W monitor

To be extended: IE-39P board

Preparation:

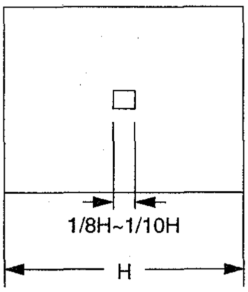
- Set the following potentiometers on the IE-39P board as follows:
  - ⊘ RV15 (DTL LEV)→Mechanical center
  - ⊘ RV12 (H/V RATIO)→Mechanical center
  - ⊘ RV14 (CRISP)→fully counterclockwise ↺
  - ⊘ RV7 (LEV DEP 1)→fully counterclockwise ↺
  - ⊘ RV22 (LEV DEP 2)→fully clockwise ↻
- S1 (DTL)/IE-39P board→"ON"

Object: White window chart

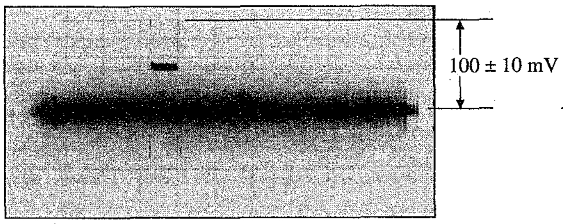
Adjustment procedures:

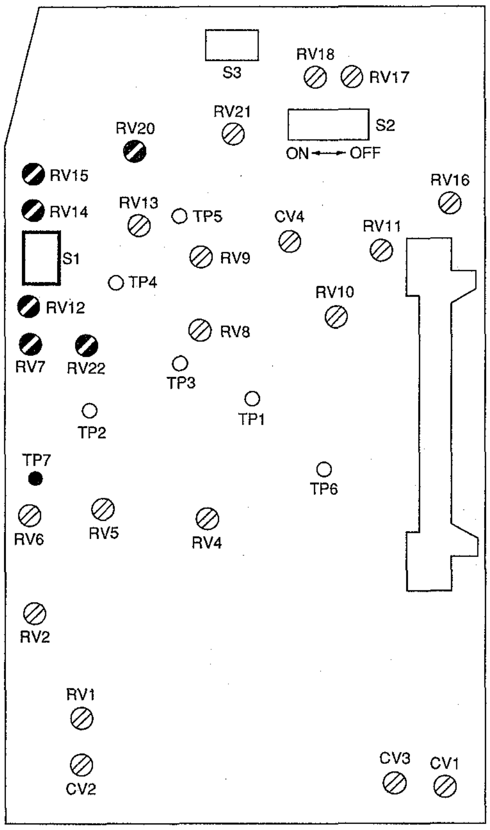
1. Using the zoom lens, shoot the white window chart as shown below.

   Lens iris: TEST OUT connector (630-700 mV)



2. GAIN switch (side panel)→"9 dB"
3. Connect the oscilloscope probe to the TP7/IE-39P board, and open the lens iris until the spike level is at a maximum.
4. Adjust ⊘ RV20/IE-39P so that the spike level meets the specification.




S3
RV18
RV17
RV21
S2
ON ←→ OFF
RV20
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP1
TP2
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV3
CV1
CV2

IE-39P BOARD (COMPONENT SIDE)

Note:
After this adjustment is complete, set the switch as follows.
- GAIN switch (side panel)→"0 dB"

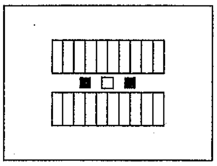
STEP 4-7. Crispening adjustment

Equipment: Waveform monitor

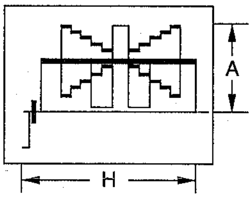
Preparation:
- S1 (DTL)/IE-39P board "ON"
- ⊘ RV7 (LEV DEP 1)/IE-39P board→fully clockwise ↻
- ⊘ RV22 (LEV DEP 2)/IE-39P board →fully counterclockwise ↺
- ⊘ RV12 (H/V RATIO)/IE-39P board →fully clockwise ↻
- ENC/RGB switch (side panel)→"ENC"
- OUTPUT/DCC switch (side panel)→"CAM/ON"

Object: Gray scale chart

Monitor Screen



Waveform Monitor



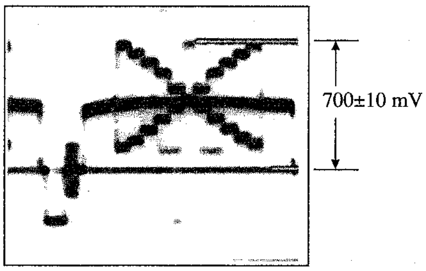
Lens Zoom: Underscanned picture frame on the monitor = chart frame

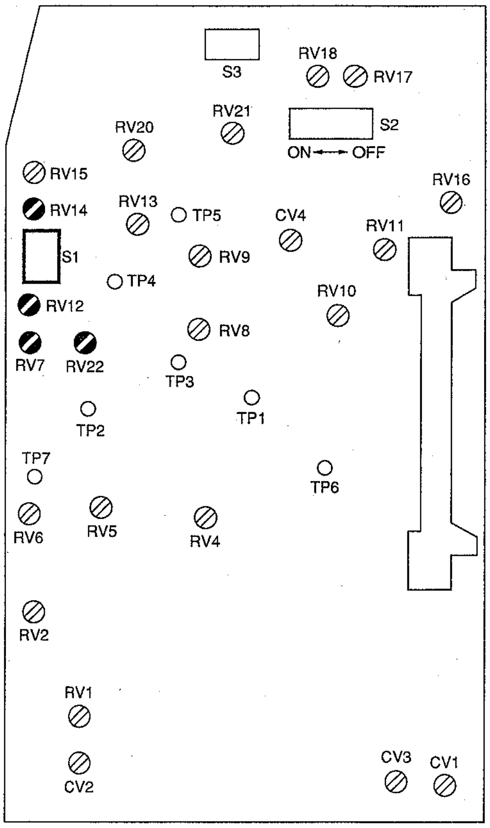
Lens iris: A = 700 ± 10 mV
(at TEST OUT connector)

Test point: TEST OUT connector

Adjust point: ⊘RV14/IE-39P board

Adjustment procedures:
Observe the waveform monitor and turn ⊘RV14 (CRISP) on the IE-39P board until the noise on the black areas of the picture just starts to be reduced. Otherwise adjust to your preferred level.




S3
RV18
RV17
RV20
RV21
S2
ON
OFF
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP1
TP2
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV2
CV3
CV1

IE-39P BOARD (COMPONENT SIDE)

STEP 4-8. Level Dependent adjustment

Equipment: Waveform monitor

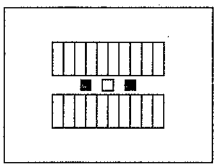
To be extended:

Trigger:

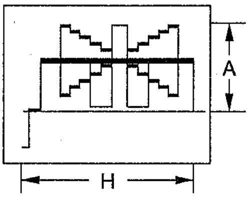
Preparation:
- S1 (DTL)/IE-39P board→"ON"
- S2 (APERTURE)/IE-39P board→"OFF"
- ENC/RGB switch (side panel)→"RGB"
- R/G/B switch (side panel)→"G"
- OUTPUT/DCC switch (side panel)→"CAM/ON"
- ⊘ RV22 (LEV DEP 2)/IE-39P board →fully counterclockwise ↺

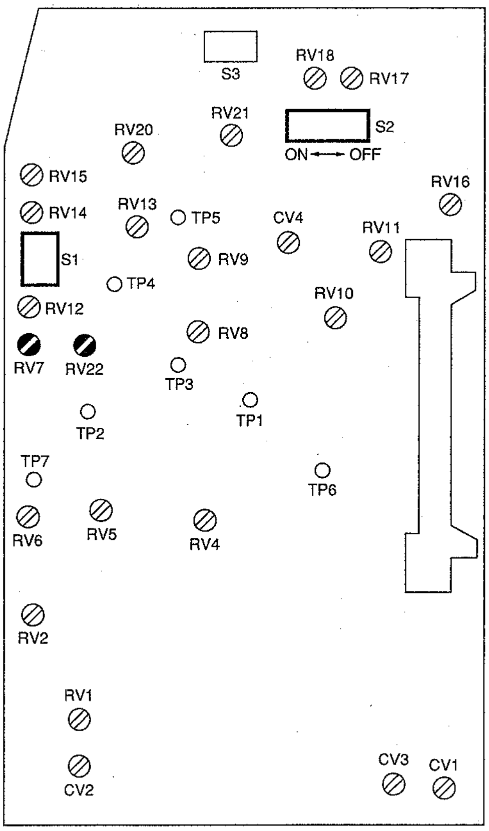
Object: Gray scale chart

Monitor Screen



Waveform Monitor




S3
RV18
RV17
RV21
RV20
S2
ON ←→ OFF
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP1
TP2
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV3
CV1
CV2

IE-39P BOARD (COMPONENT SIDE)

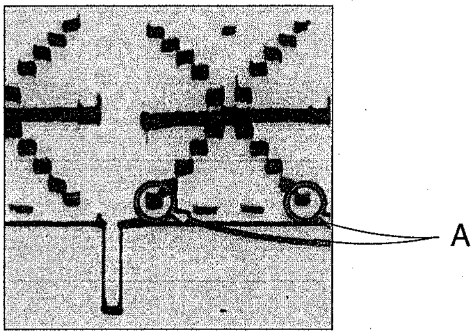
Lens Zoom: Underscanned picture frame on the monitor = chart frame

Lens iris: A = 700 ± 10 mV (at TEST OUT connector)

Test point: TEST OUT connector

Adjust point: ⊘ RV7 (LEV DEP 1)/IE-39P board

Adjustment procedures:
Turn ⊘ RV7 on the IE-39P board clockwise slowly from the leftmost position and stop where the spikes position A start to decrease. If not, adjust ⊘ RV22 /IE-39P board.



Note:
After this adjustment is complete, set the switch as follows.
- OUTPUT/DCC switch (side panel)→"CAM/ON"

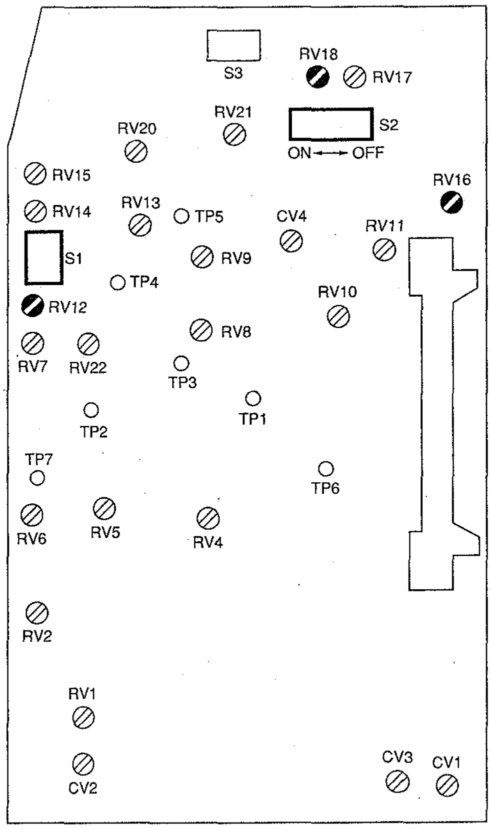
STEP 4-9. Aperture Alias adjustment

Equipment: Waveform monitor

To be extended: IE-39P board

Preparation:

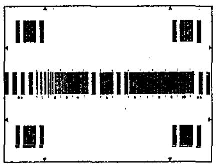
- ENC/RGB switch (side panel)→"ENC"
- S1 (DTL)/IE-39P board→"OFF"
- S2 (APERTURE)/IE-39P board→"ON"
- ⊘RV18 (APERTURE)/IE-39P board →fully clockwise ↻
- ⊘RV12 (H/V RATIO)/IE-39P board →fully counterclockwise ↺


S3
RV18
RV17
RV21
RV20
S2
ON←→OFF
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP2
TP1
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV2
CV3
CV1

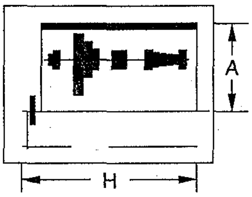
IE-39P BOARD (COMPONENT SIDE)

Object: Burst chart

Monitor Screen



Waveform Monitor



Lens Zoom: Underscanned picture frame on the monitor = chart frame

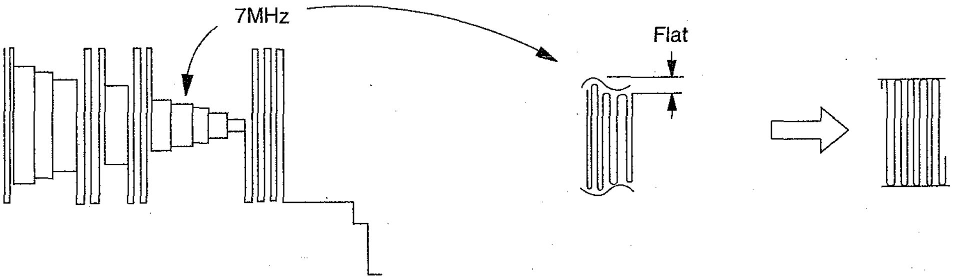
Lens iris: A = 630 ± 10 mV
(at TEST OUT connector)

Test point: TEST OUT connector

Adjust point: ⊘RV16/IE-39P board

Adjustment procedures:

1. Pan so that the 7 MHz of the burst chart is positioned at center on the monitor screen.
2. Adjust the ⊘RV16/IE-39P board so that the waveform signal of 7 MHz is flat.



STEP 4-10. Aperture Null adjustment

Equipment: Oscilloscope, Waveform monitor

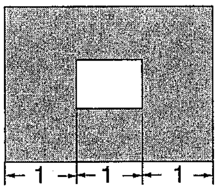
To be extended: IE-39P board

Trigger: TP36/extension board

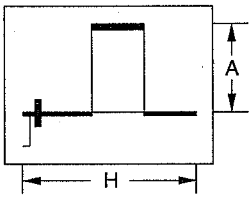
Preparation:
- ENC/RGB switch (side panel)→"ENC"
- S1 (DTL)/IE-39P board→"ON"
- S2 (APERTURE)/IE-39P board→"OFF"

Object: White window chart

Monitor Screen



Waveform Monitor



Lens Zoom: Shoot the white window chart as shown above.

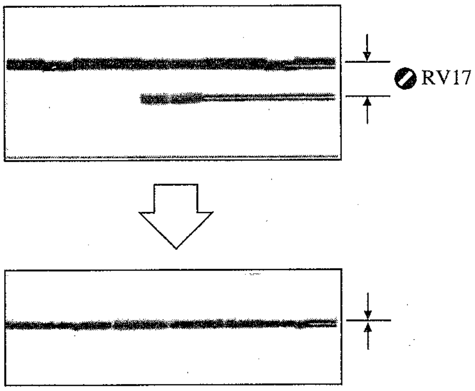
Lens iris: A = 700 ± 10 mV (at TEST OUT connector)

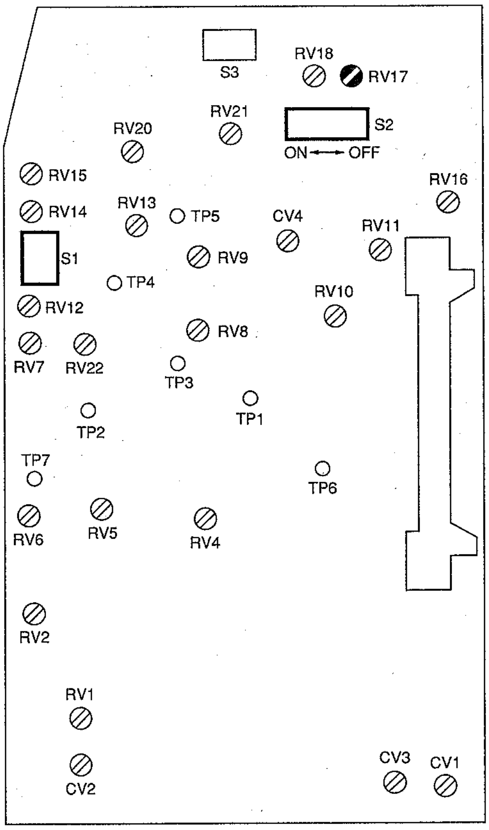
Test point: TP20/extension board

Adjust point: ⊘RV17/IE-39P board

Adjustment procedures:

1. Adjust the ⊘RV17/IE-39P board so that the white signal is as shown below.




S3
RV18
RV17
RV21
S2
ON OFF
RV20
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP1
TP2
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV3
CV1
CV2

IE-39P BOARD (COMPONENT SIDE)

Note:
After this adjustment is complete, set the switch as follows.
- GAIN switch (side panel)→"0 dB"

STEP 4-11. Aperture adjustment

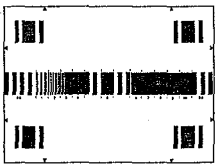
Equipment: Waveform monitor

To be extended: IE-39P board

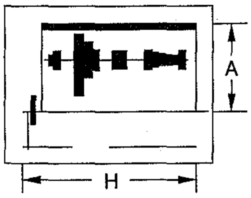
Preparation:
- S1 (DTL)/IE-39P board→"OFF"
- S2 (APERTURE)/IE-39P board→"ON"
- ENC/RGB switch (side panel)→"ENC"
- ⊘RV18 (APT LEVEL)/IE-39P board →fully clockwise ↻

Object: Burst chart

Monitor Screen



Waveform Monitor



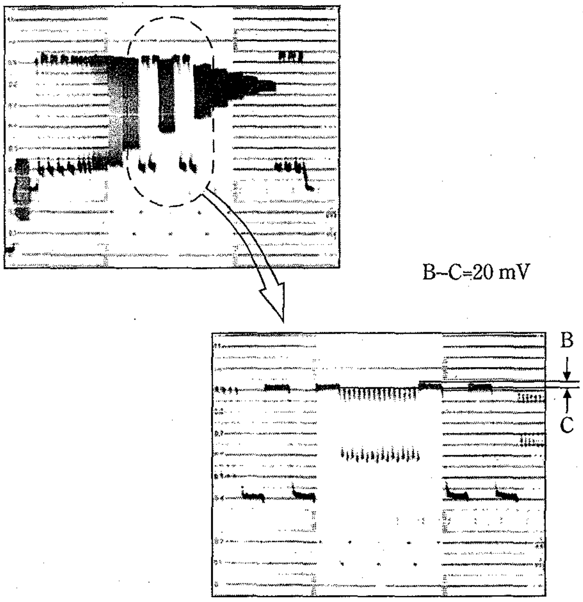
Lens Zoom: Underscanned picture frame on the monitor = chart frame

Lens iris: A = 630 ± 10 mV (at TEST OUT connector)

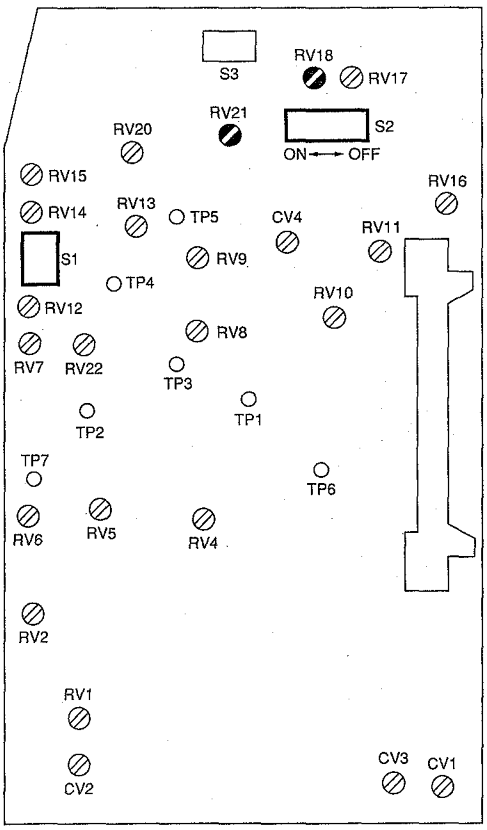
Test point: TEST OUT connector

Adjust point: ⊘RV21/IE-39P board

Adjustment procedures:



B–C=20 mV


S3
RV18
RV17
RV21
RV20
S2
ON←→OFF
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP2
TP1
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV2
CV3
CV1

IE-39P BOARD (COMPONENT SIDE)

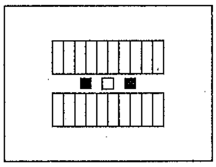
STEP 4-12. H/V Ratio adjustment

Equipment: B/W monitor, Waveform monitor

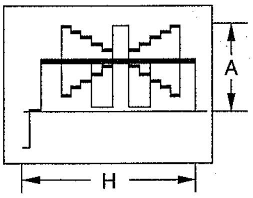
Preparation:
- S1 (DTL)/IE-39P board→"ON"
- S2 (APERTURE)/IE-39P board→"OFF"
- ⊘RV15 (DTL)/IE-39P board →fully counterclockwise ↶

Object: Gray scale chart

Monitor Screen



Waveform Monitor



Lens Zoom: Underscanned picture frame on the monitor = chart frame

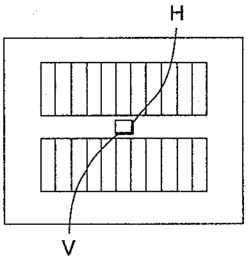
Lens iris: A = 700 ± 10 mV
(at TEST OUT connector)

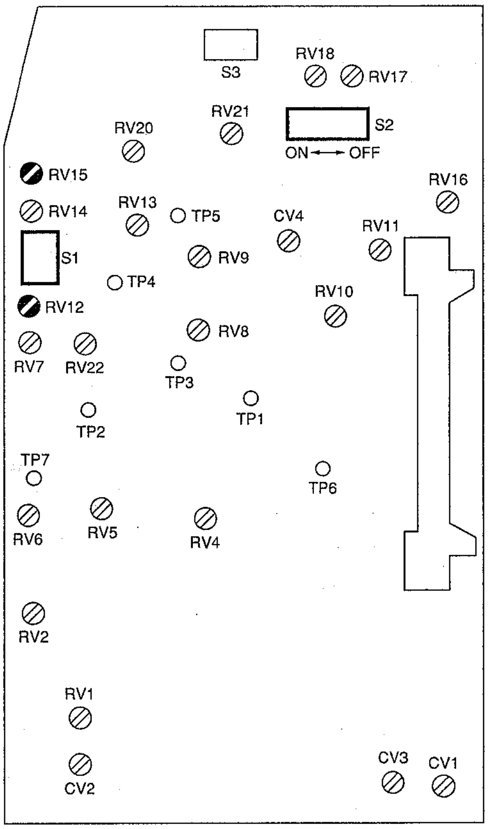
Test point: TEST OUT connector

Adjust point: ⊘RV12 (H/V RATIO)/IE-39P board

Adjustment procedures:
Adjust ⊘RV12 (H/V RATIO)/IE-39P board so that the H and V detail amounts to be added are equivalent.

Monitor screen




S3
RV18
RV17
RV20
RV21
S2
ON OFF
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP2
TP1
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV3
CV1
CV2

IE-39P BOARD (COMPONENT SIDE)

STEP 4-13. Detail Level adjustment

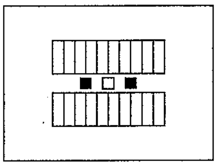
Equipment: B/W monitor, Waveform monitor

To be extended:

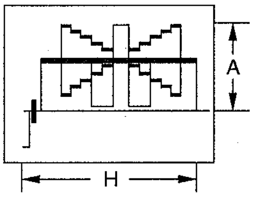
Preparation:
- S1 (DTL)/IE-39P board→"ON"
- S2 (APERTURE)/IE-39P board→"OFF"

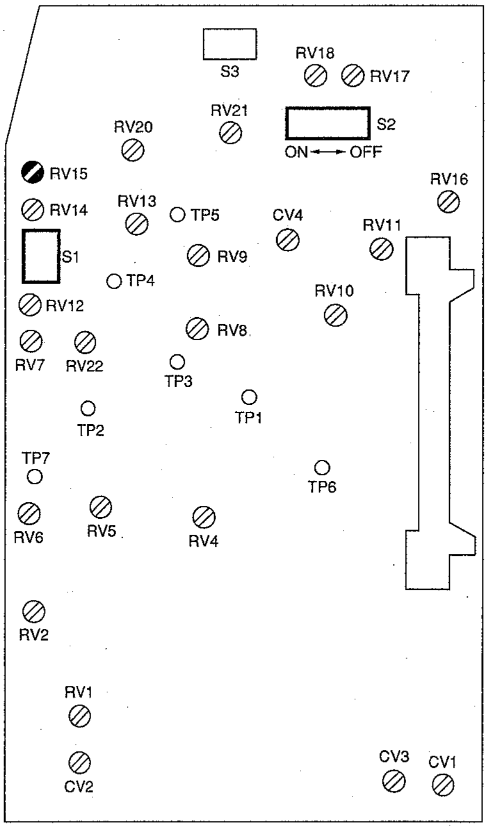
Object: Gray scale chart

Monitor Screen



Waveform Monitor




S3
RV18
RV17
RV21
S2
ON OFF
RV20
RV15
RV16
RV14
RV13
TP5
CV4
RV11
S1
RV9
TP4
RV10
RV12
RV8
RV7
RV22
TP3
TP1
TP2
TP7
TP6
RV6
RV5
RV4
RV2
RV1
CV2
CV3
CV1

IE-39P BOARD (COMPONENT SIDE)

Lens Zoom: Underscanned picture frame on the monitor = chart frame

Lens iris: A = 560 ± 10 mV
(at TEST OUT connector)

Test point: TEST OUT connector

Adjust point: ⊘RV15(DTL)/IE-39P board

Adjustment procedures:
Set the detail level according to the users' request by adjusting ⊘RV15 (DTL)/IE-39P board.

STEP 4-14. Knee Aperture adjustment

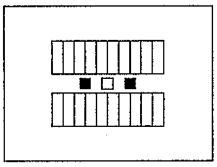
Equipment: Waveform monitor

To be extended: PR-179 board

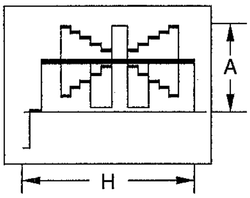
Preparation:
- ENC/RGB switch (side panel) →"ENC"
- OUTPUT/DCC switch (side panel) →"DCC"
- S1 (DTL)/IE-39P board →"OFF"
- S2 (APERTURE)/IE-39P board →"ON"
- GAIN switch (side panel) →"0 dB"

Object: Gray scale chart

Monitor Screen

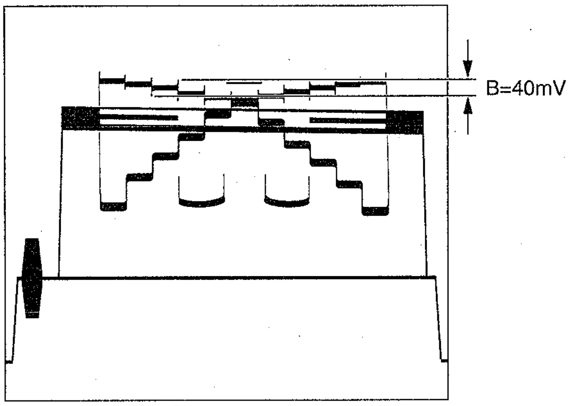


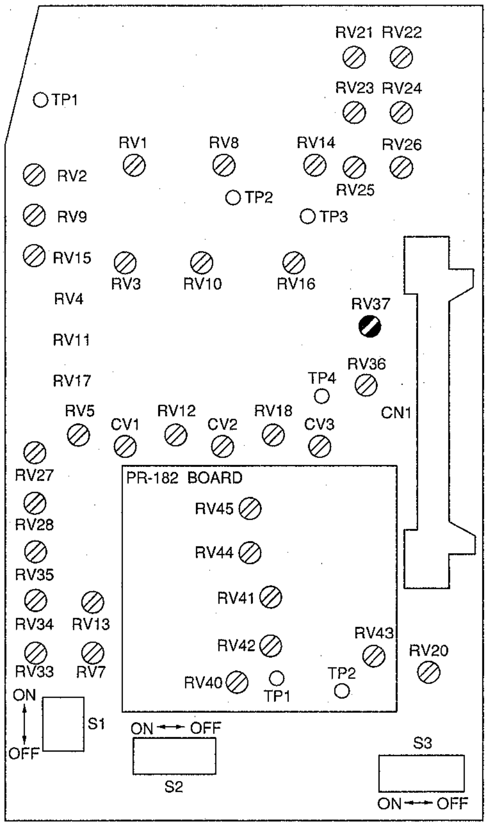
Waveform Monitor



Lens Zoom: Underscanned picture frame on the monitor = chart frame

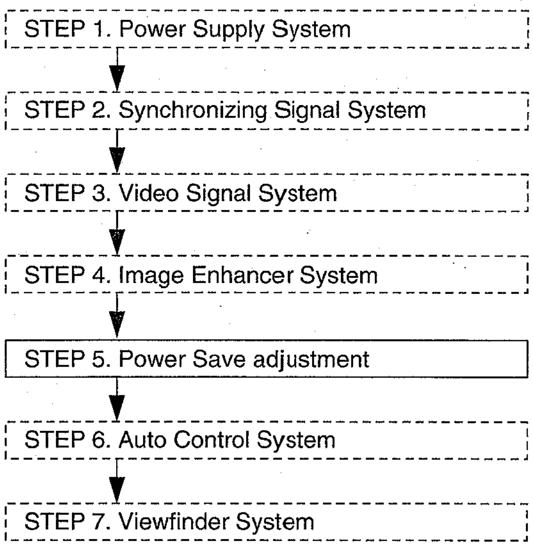
Adjustment procedures:
1. Lens iris : A=700±10 mV
   (at TEST out connector)
2. GAIN switch (side panel) →"9 dB"
3. ⊘ RV37/PR-179 board
   B=40±2 mV




RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
RV17
TP4
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34
RV13
RV43
RV42
RV20
RV33
RV7
RV40
TP1
TP2
ON
OFF
S1
ON ↔ OFF
S2
S3
ON ↔ OFF

PR-179 BOARD (COMPONENT SIDE)

STEP 5. Power Save adjustment


STEP 1. Power Supply System
STEP 2. Synchronizing Signal System
STEP 3. Video Signal System
STEP 4. Image Enhancer System
STEP 5. Power Save adjustment
STEP 6. Auto Control System
STEP 7. Viewfinder System

STEP 5. Power Save adjustment

Equipment: Digital Voltmeter

To be extended: EN-107P board

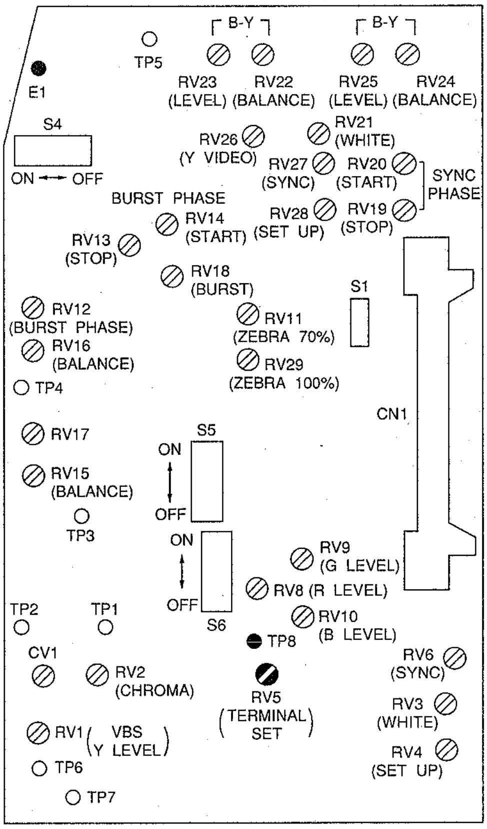
Adjustment procedures:

1. **Test point:** TP8 (GND: E1)/EN-107P board

   Adjust point: ⊘ RV5/EN-107P board

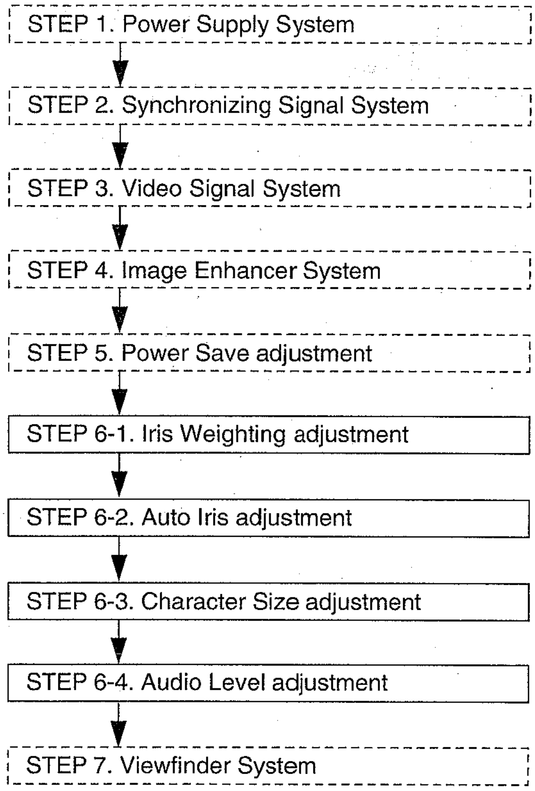
   Specification: – 0.45 ± 0.1 V dc

2. Observe the waveform at TP45/extension board. Confirm that the VBS signal is appeared when the ENC/RGB switch is set to "ENC" and the Y signal is appeared when its switch is set to "RGB".
   Note: This confirmation must be carried out in condition that the camera unit or the camera adaptor is not connected with the remote control unit, CCU or VTR.


B-Y
B-Y
TP5
E1
RV23 (LEVEL)
RV22 (BALANCE)
RV25 (LEVEL)
RV24 (BALANCE)
S4
ON ← → OFF
RV26 (Y VIDEO)
RV21 (WHITE)
RV27 (SYNC)
RV20 (START)
SYNC PHASE
BURST PHASE
RV14 (START)
RV28 (SET UP)
RV19 (STOP)
RV13 (STOP)
RV18 (BURST)
S1
RV12 (BURST PHASE)
RV11 (ZEBRA 70%)
RV16 (BALANCE)
RV29 (ZEBRA 100%)
TP4
CN1
RV17
S5
ON
OFF
RV15 (BALANCE)
TP3
ON
OFF
S6
RV9 (G LEVEL)
RV8 (R LEVEL)
TP2
TP1
RV10 (B LEVEL)
TP8
CV1
RV2 (CHROMA)
RV5 (TERMINAL SET)
RV6 (SYNC)
RV3 (WHITE)
RV1 (VBS Y LEVEL)
RV4 (SET UP)
TP6
TP7

EN-107P BOARD (COMPONENT SIDE)

STEP 6. AUTO CONTROL SYSTEM


STEP 1. Power Supply System
STEP 2. Synchronizing Signal System
STEP 3. Video Signal System
STEP 4. Image Enhancer System
STEP 5. Power Save adjustment
STEP 6-1. Iris Weighting adjustment
STEP 6-2. Auto Iris adjustment
STEP 6-3. Character Size adjustment
STEP 6-4. Audio Level adjustment
STEP 7. Viewfinder System

STEP 6-1. Iris Weighting adjustment

Equipment: Oscilloscope

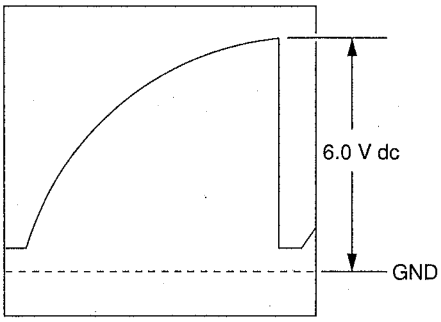
To be extended: PR-179 board

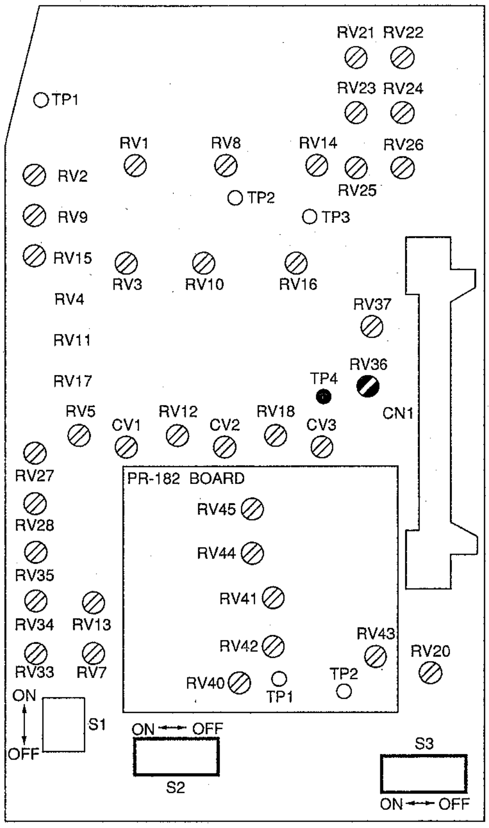
Trigger: TP44/extension board

Test point: TP4/PR-179 board

Adjust point: ⊘ RV36/PR-179 board

Adjustment procedures:




RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
RV17
TP4
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34
RV13
RV42
RV43
RV20
RV33
RV7
RV40
TP1
TP2
ON
OFF
S1
ON OFF
S2
S3
ON OFF

PR-179 BOARD (COMPONENT SIDE)

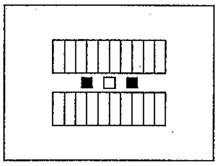
STEP 6-2. Auto Iris adjustment

Equipment: Waveform monitor

Preparation:
- ENC/RGB switch (side panel) ⟶ "ENC"
- Iris AUTO/MANU switch (Lens) ⟶ "AUTO"
- OUTPUT/DCC switch (side panel) ⟶ "CAM/ON"

Object: Grauscale chart

Monitor Screen



Lens Zoom: Underscanned picture frame on the monitor = chart frame

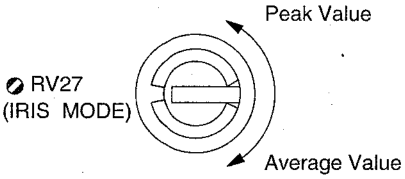
Test point: TEST OUT connector

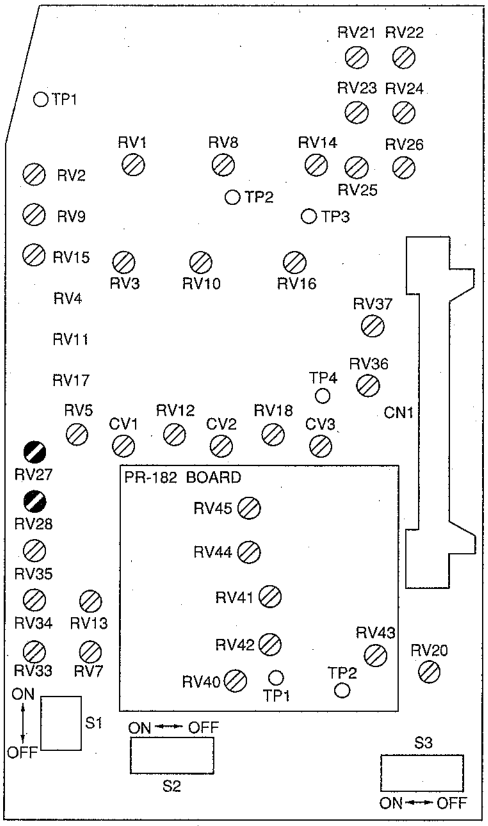
Adjust point: ⊘RV28 (IRIS SET)/PR-179U board
⊘RV27 (IRIS MODE)/PR-179U board

Specification:

Adjustment procedures:

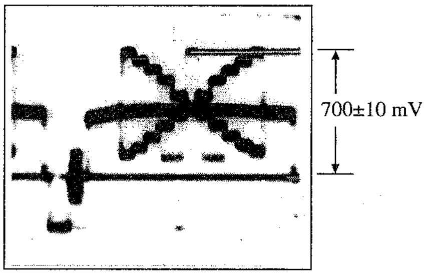
1. The iris control operation is controlled by mixing the peak level of the video signal with the average of it. That mixing ratio can be set by adjusting ⊘RV27 (IRIS MODE)/PR-179U board.
   Set the mode according to the users' request.
   Normally set it at the center.


Peak Value
⊘ RV27
(IRIS MODE)
Average Value


RV21 RV22
RV23 RV24
TP1
RV1
RV8
RV14
RV26
RV2
TP2
RV25
RV9
TP3
RV15
RV3
RV10
RV16
RV4
RV37
RV11
RV36
RV17
TP4
RV5
CV1
RV12
CV2
RV18
CV3
CN1
RV27
PR-182 BOARD
RV45
RV28
RV44
RV35
RV41
RV34
RV13
RV43
RV42
RV20
RV33
RV7
RV40
TP1
TP2
ON
S1
OFF
ON ⟵⟶ OFF
S2
S3
ON ⟵⟶ OFF

PR-179 BOARD (COMPONENT SIDE)

2. Adjust ⊘RV28 (IRIS SET)/PR-179U board so that the white level at TEST OUT connector is 700 ± 10 mV.



Note:

After this adjustment is complete, set the switch as follows.
- Iris AUTO/MANU switch (Lens) ⟶ "MANU"
- OUTPUT/DCC switch (side panel) ⟶ "CAM/OFF"

STEP 6-3. Character Size adjustment

Preparation:

- ENC/RGB switch (side panel) → "ENC"
- OUTPUT/DCC switch (side panel) → "CAM/OFF"

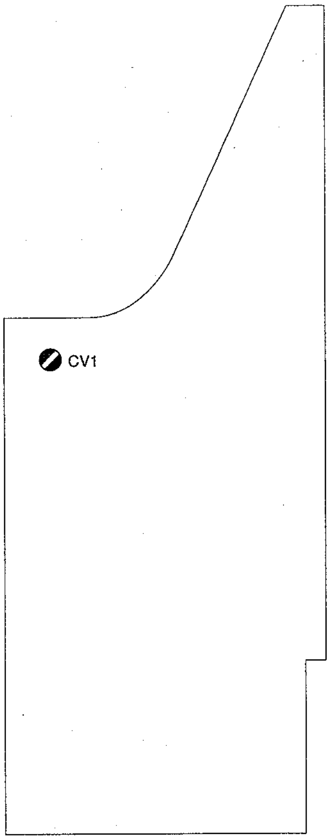
Lens iris: Close "C"

Test point: TEST OUT connector

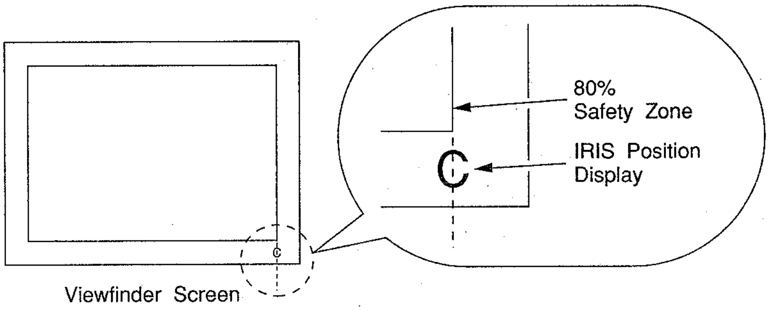
Adjust point: ⊘ CV1 (CHR SIZE)/AT-77 board

Adjustment procedures:

1. Display the safety zone (80%) and the iris position on the viewfinder.
2. Adjust with the ⊘CV1 (CHR SIZE)/ AT-77 board so that the extension line at the right end of the safety zone is in contact with the center of the "C" on the iris position display.
3. After adjustment, return the AT-77 board to its normal position and fix it with two screws.
   Then make sure that the Iris position display can be seen.
   If not, repeat procedures 1 and 2.



AT-77 BOARD (SOLDERING SIDE)



STEP 6-4. Audio Level adjustment

Note:

- Perform this adjustment when BVV-5 or BVV-1 is connected.

Equipment: Audio signal generator

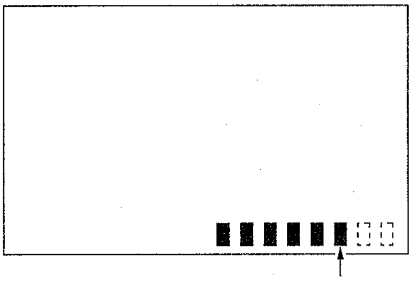
Preparation:

1. Set BVV-5 (or BVV-1) as follows.
   - AUDIO IN switch CH-1 → "LINE"
   - AUDIO SELECT switch CH-1 → "MAN"
   - Apply a sine wave of 1 kHz -15 dB to AUDIO IN CH-1.
   - Adjust the AUDIO LEVEL control so that the AUDIO LEVEL meter of CH-1 is VU = 0.
2. AUDIO IND switch (ON/OFF)/viewfinder → "ON"

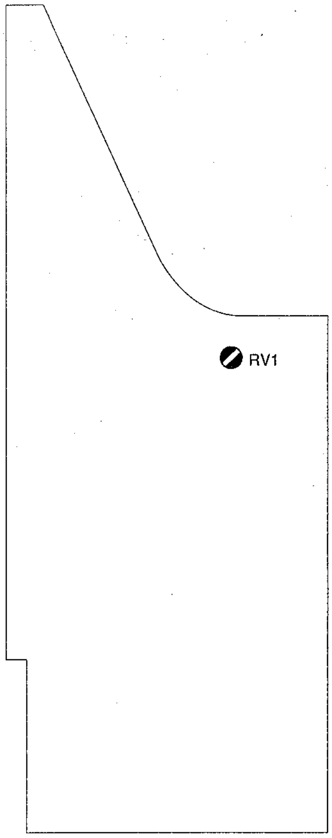
Test point: Viewfinder screen

Adjust point: ⊘RV1/AT-77 board

Specification: Turn the ⊘RV1/AT-77 board counterclockwise slowly from the rightmost position and stop where the sixth ▯ is displayed on the viewfinder screen.

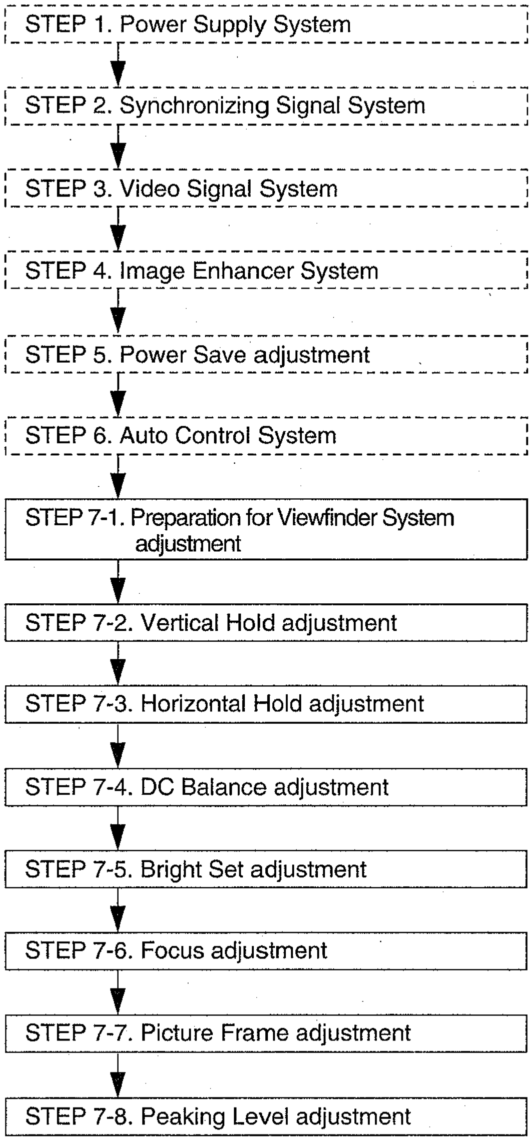


The sixth ▯ is displayd.



AT-77 BOARD (COMPONENT SIDE)

STEP 7. VIEWFINDER SYSTEM


STEP 1. Power Supply System
STEP 2. Synchronizing Signal System
STEP 3. Video Signal System
STEP 4. Image Enhancer System
STEP 5. Power Save adjustment
STEP 6. Auto Control System
STEP 7-1. Preparation for Viewfinder System adjustment
STEP 7-2. Vertical Hold adjustment
STEP 7-3. Horizontal Hold adjustment
STEP 7-4. DC Balance adjustment
STEP 7-5. Bright Set adjustment
STEP 7-6. Focus adjustment
STEP 7-7. Picture Frame adjustment
STEP 7-8. Peaking Level adjustment

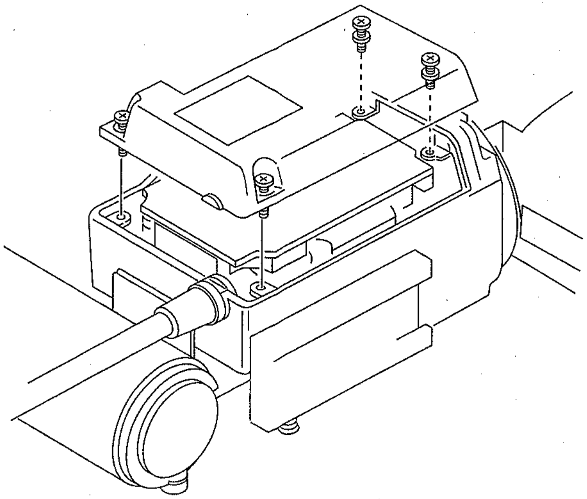
STEP 7-1. Preparation for Viewfinder System adjustment

Note:

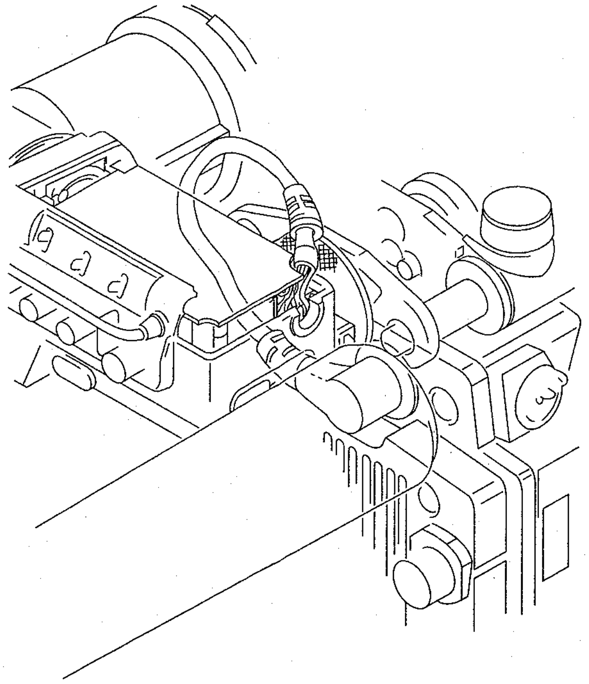
- Be sure to adjust the camera completely, or the following adjustments will become invalid.

Preparation:

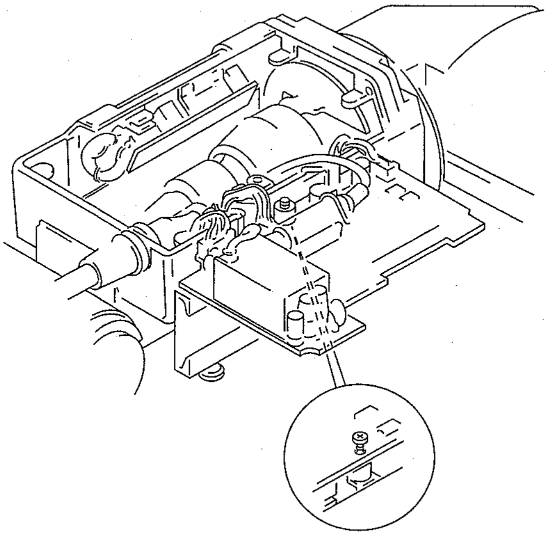
1. Set the power of AC adaptor (AC-500CE or CMA-8CE/8ACE) to "OFF".
2. Remove the viewfinder from the camera and remove the VF cover.



3. Install the viewfinder to be turned upside shown on the camera.



4. Turn the component side of VF-51 board up wards for adjustments as shown below.



5. Set the power switch of AC adaptor (AC-500CE or CMA-8CE/8ACE) to "ON".

STEP 7-2. Vertical Hold adjustment

Equipment: Oscilloscope

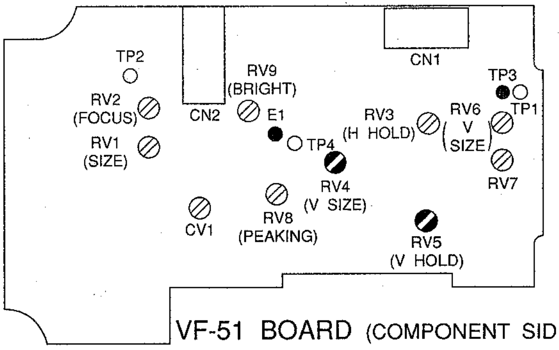
Preparation:

1. Pull the EN-107P board out of the camera.
2. Set ⊘ RV4 (V SIZE)/VF-51 board to the mechanical center unless it is marked.

Test point: TP3 (GND: E1)/VF-51 board

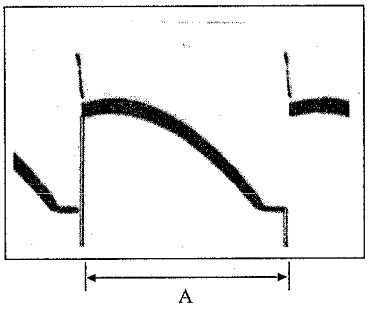
Adjust point: ⊘ RV5 (V HOLD)/VF-51 board

Specification: A = 25.6 ± 0.5 ms


TP2
RV2 (FOCUS)
RV1 (SIZE)
CN2
RV9 (BRIGHT)
E1
TP4
RV4 (V SIZE)
RV8 (PEAKING)
CV1
CN1
TP3
TP1
RV3 (H HOLD)
RV6 (V SIZE)
RV7
RV5 (V HOLD)

VF-51 BOARD (COMPONENT SIDE)

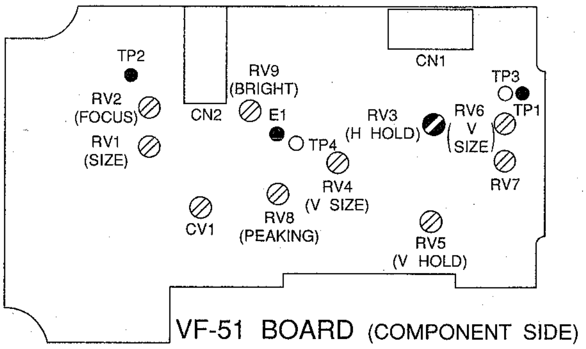
Adjustment procedures:



Note:

- After this adjustment is complete, insert the EN-107P board into the camera.

STEP 7-3. Horizontal Hold adjustment

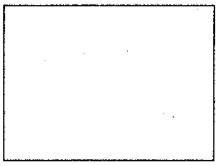

TP2
RV9
(BRIGHT)
CN1
TP3
RV2
(FOCUS)
CN2
E1
RV3
(H HOLD)
RV6
V
SIZE
TP1
RV1
(SIZE)
TP4
RV4
(V SIZE)
RV7
CV1
RV8
(PEAKING)
RV5
(V HOLD)
VF-51 BOARD (COMPONENT SIDE)

Equipment: Oscilloscope, Waveform monitor

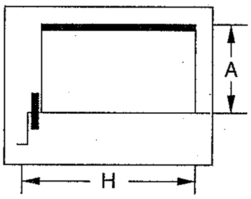
Trigger: CH2/oscilloscope (TP1 (GND: E1))

Object: White window chart

Monitor Screen



Waveform Monitor



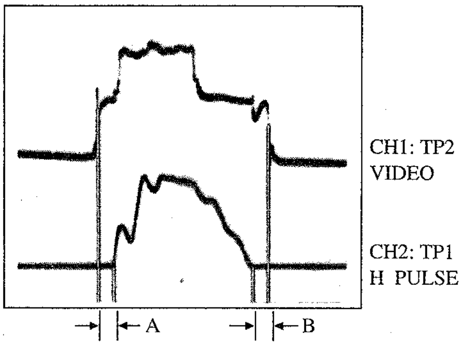
Lens Zoom: Underscanned picture frame on the monitor = chart frame

Lens iris: A = 700 ± 10 mV
(at TEST OUT connector)

Test point: CH1 TP2 (GND: E1)/VF-51 board
CH2 TP1 (GND: E1)/VF-51 board

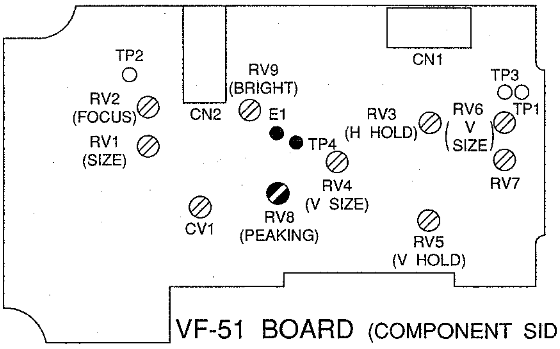
Adjust point: ⊘ RV3 (H HOLD)/VF-51 board

Adjustment procedures:



A = B

STEP 7-4. DC Balance adjustment


TP2
RV2
(FOCUS)
RV1
(SIZE)
CN2
RV9
(BRIGHT)
E1
TP4
CV1
RV8
(PEAKING)
RV4
(V SIZE)
CN1
RV3
(H HOLD)
RV6
V
SIZE
TP3
TP1
RV7
RV5
(V HOLD)

VF-51 BOARD (COMPONENT SIDE)

Equipment: Oscilloscope (DC mode)

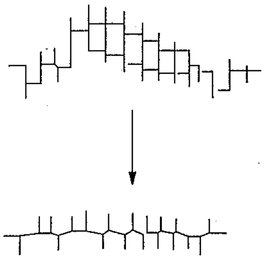
Preparation:

- OUTPUT/DCC switch (side panel) → BARS/OFF

Test point: TP4 (GND: E1)/VF-51 board

Adjust point: ⊘RV8 (DC BALANCE)/VF-51 board

Adjustment procedures:



Only spike noises should appear at TP4.

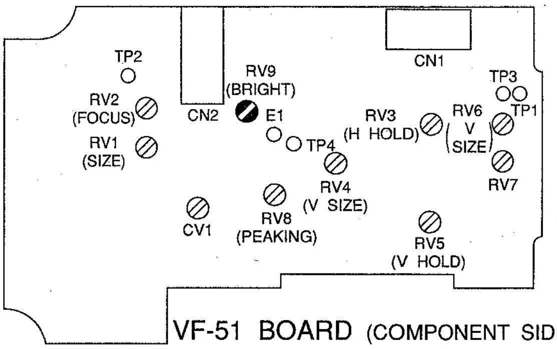
STEP 7-5. Bright Set adjustment

Preparation:

- BRIGHT control (viewfinder) → "fully counterclockwise" ↺
- CONTRAST control (viewfinder) → "fully clockwise" ↻
- OUTPUT/DCC switch (side panel) → "BARS/OFF"

Test point: Viewfinder screen

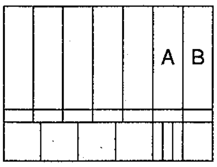
Adjust point: ⊘RV9 (BRIGHT SET)/VF-51 board


TP2
RV2 (FOCUS)
RV1 (SIZE)
CN2
RV9 (BRIGHT)
E1
TP4
CN1
TP3
TP1
RV3 (H HOLD)
RV6 (V SIZE)
RV7
RV4 (V SIZE)
CV1
RV8 (PEAKING)
RV5 (V HOLD)

VF-51 BOARD (COMPONENT SIDE)

Adjustment procedures:

⊘RV9 (BRIGHT SET)/VF-51 board Adjust ⊘RV9 so that portions A and B on the viewfinder screen can be barely discriminated, and portions B and C cannot be discriminated.



STEP 7-6. Focus adjustment

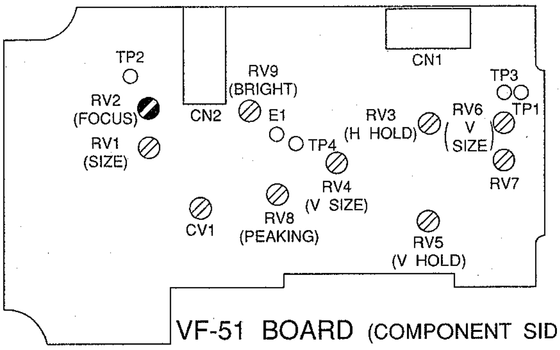
Note:

- STEP 7-7. Picture Frame adjustment and this adjustment affect each other. Repeat these adjustments until both specifications are met.

Equipment: Waveform monitor

Preparation:

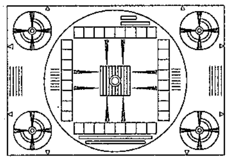
- BRIGHT control (viewfinder) → "mechanical center"
- CONTRAST control (viewfinder) → "fully clockwise" ↻
- PEAKING control (viewfinder) → "fully counterclockwise" ↺


TP2
RV2 (FOCUS)
RV1 (SIZE)
CN2
RV9 (BRIGHT)
E1
TP4
CN1
TP3
TP1
RV3 (H HOLD)
RV6 (V SIZE)
RV7
RV4 (V SIZE)
RV8 (PEAKING)
CV1
RV5 (V HOLD)

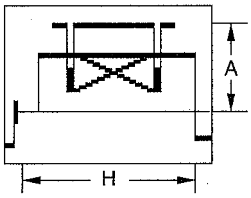
VF-51 BOARD (COMPONENT SIDE)

Object: Resolution chart

Monitor Screen



Waveform Monitor



Lens Zoom: Underscanned picture frame on the monitor = chart frame

Lens iris: A = 700 ± 10 mV (at TEST OUT connector)

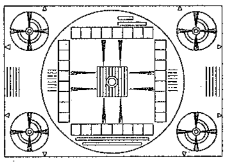
Test point: Viewfinder screen

Adjust point: ⊘RV2 (FOCUS)/VF-51 board

Adjustment procedures:

Turn ⊘RV2 (FOCUS)/VF-51 board clockwise slowly from the leftmost position until the picture on the viewfinder is best focused. (Note: turn slowly.)

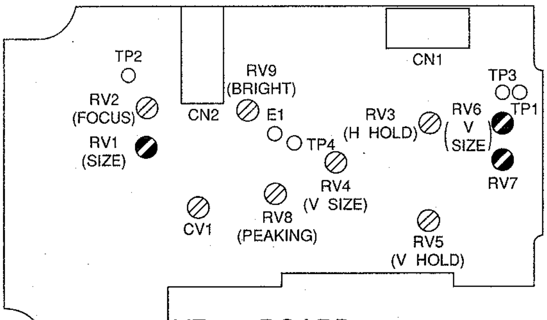
Viewfinder



Note:

- After this adjustment is complete, confirm that a focus can be achieved regardless of positions where the BRIGHT and CONTRAST control are set.

STEP 7-7. Picture Frame adjustment


TP2
RV2 (FOCUS)
RV1 (SIZE)
CN2
RV9 (BRIGHT)
E1
TP4
RV4 (V SIZE)
RV8 (PEAKING)
CV1
CN1
TP3
TP1
RV3 (H HOLD)
RV6 (V SIZE)
RV7
RV5 (V HOLD)

VF-51 BOARD (COMPONENT SIDE)

Note:

- STEP 7-6. Focus adjustment and this adjustment affect each other. Repeat these adjustments until both specifications are met.

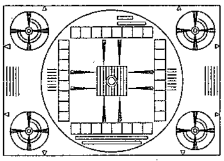
Equipment: Waveform monitor

Preparation:

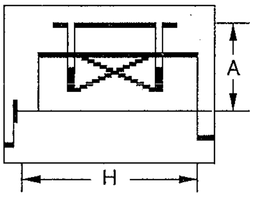
- Remove the eye cap from the viewfinder.
- BRIGHT control (viewfinder) → "mechanical center"
- CONTRAST control (viewfinder) → "mechanical center"
- PEAKING control (viewfinder) → "fully counterclockwise" ↺

Object: Resolution chart

Monitor Screen



Waveform Monitor



Lens Zoom: Underscanned picture frame on the monitor = chart frame

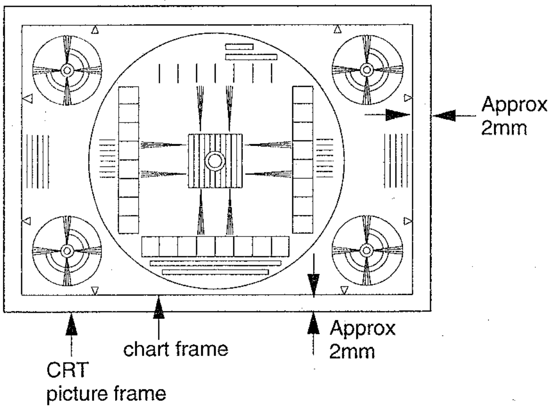
Lens iris: A = 700 ± 10 mV
(at TEST OUT connector)

Test point: Viewfinder screen

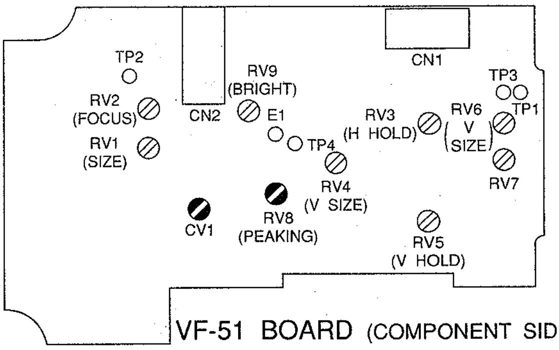
Adjustment procedures:

1. Adjust ⊘RV7 (V LIN)/VF-51 board so that the distortion of each circle at the four corners of resolution chart is minimized.
2. Adjust ⊘RV1 (H SIZE)/VF-51 board so that the H size of resolution chart is underscanned by approx. 2 mm from the CRT picture frame.
3. Adjust ⊘RV6 (V SIZE)/VF-51 board so that the V size of resolution chart is underscanned by approx. 2 mm from the CRT picture frame.
4. Adjust the centering magnet of the deflection coil so that the center of resolution chart is located at the center of viewfinder screen.
5. Adjust the centering magnet of the deflection coil so that the resolution chart is located in the center of viewfinder screen.
6. Repeat item 1 to item 5 until the specification are met.

Viewfinder screen


Approx 2mm
chart frame
CRT picture frame
Approx 2mm

STEP 7-8. Peaking Level adjustment


TP2
RV2
(FOCUS)
RV1
(SIZE)
CN2
RV9
(BRIGHT)
E1
TP4
CN1
TP3
TP1
RV3
(H HOLD)
RV6
V
SIZE
RV7
RV4
(V SIZE)
CV1
RV8
(PEAKING)
RV5
(V HOLD)
VF-51 BOARD (COMPONENT SIDE)

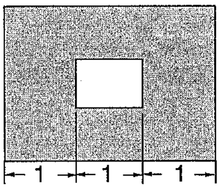
Equipment: Waveform monitor

Preparation:

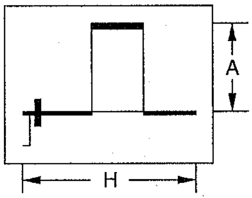
- Remove the eye cap from the viewfinder.
- PEAKING control (viewfinder) → "Turn the PEAKING control from fully clockwise to counterclockwise by 10 degrees"
- BRIGHT control (viewfinder) → "mechanical center"
- CONTRAST control (viewfinder) → "mechanical center"

Object:

Monitor Screen



Waveform Monitor



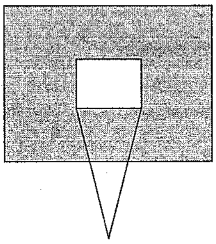
Lens iris: A = 350 ± 10 mV (at TEST OUT connector)

Test point: Viewfinder screen

Adjustment procedures:

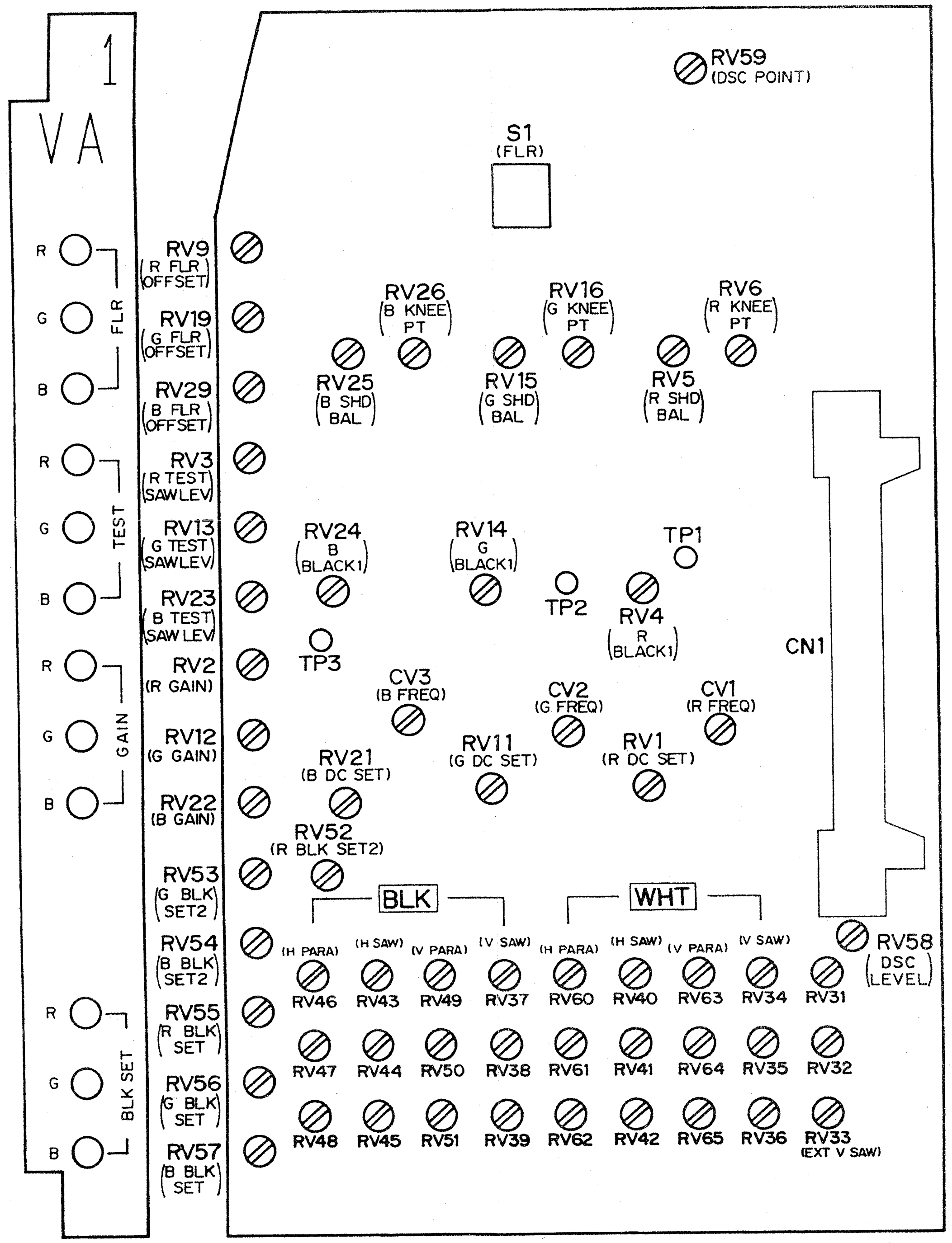
Adjust ⊘CV1 and ⊘RV8 on the VF-51 board so that the white window chart is as shown below.

Viewfinder



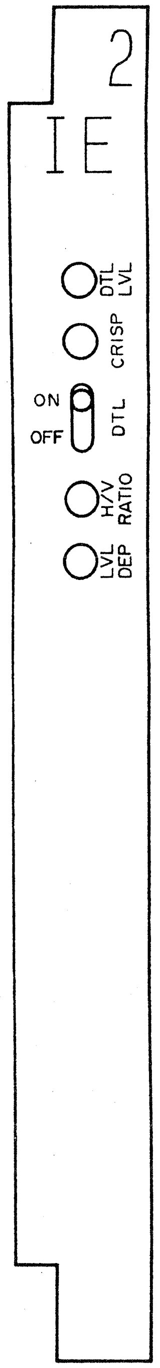
The peak level at edges should be the same.

VA-132 BOARD

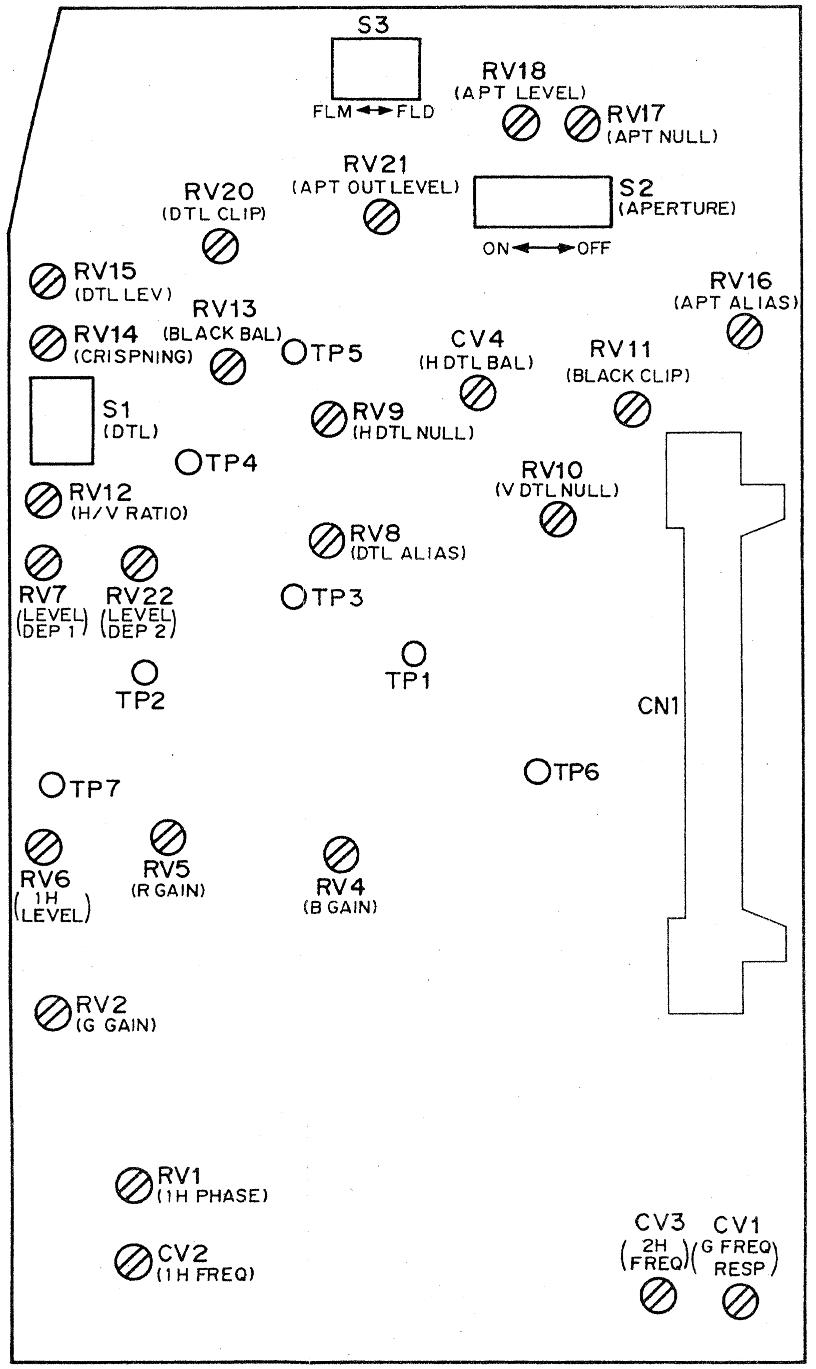

1
VA
R
G
B
FLR
R
G
B
TEST
R
G
B
GAIN
R
G
B
BLK SET
RV9 (R FLR OFFSET)
RV19 (G FLR OFFSET)
RV29 (B FLR OFFSET)
RV3 (R TEST SAW LEV)
RV13 (G TEST SAW LEV)
RV23 (B TEST SAW LEV)
RV2 (R GAIN)
RV12 (G GAIN)
RV22 (B GAIN)
RV53 (G BLK SET2)
RV54 (B BLK SET2)
RV55 (R BLK SET)
RV56 (G BLK SET)
RV57 (B BLK SET)
RV59 (DSC POINT)
S1 (FLR)
RV26 (B KNEE PT)
RV16 (G KNEE PT)
RV6 (R KNEE PT)
RV25 (B SHD BAL)
RV15 (G SHD BAL)
RV5 (R SHD BAL)
RV24 (B BLACK1)
RV14 (G BLACK1)
TP1
TP2
RV4 (R BLACK1)
TP3
CN1
CV3 (B FREQ)
CV2 (G FREQ)
CV1 (R FREQ)
RV21 (B DC SET)
RV11 (G DC SET)
RV1 (R DC SET)
RV52 (R BLK SET2)
BLK
WHT
(H PARA)
(H SAW)
(V PARA)
(V SAW)
(H PARA)
(H SAW)
(V PARA)
(V SAW)
RV58 (DSC LEVEL)
RV46
RV43
RV49
RV37
RV60
RV40
RV63
RV34
RV31
RV47
RV44
RV50
RV38
RV61
RV41
RV64
RV35
RV32
RV48
RV45
RV51
RV39
RV62
RV42
RV65
RV36
RV33 (EXT V SAW)

(PANEL SIDE)   VA-132 BOARD (COMPONENT SIDE)

IE-39 BOARD

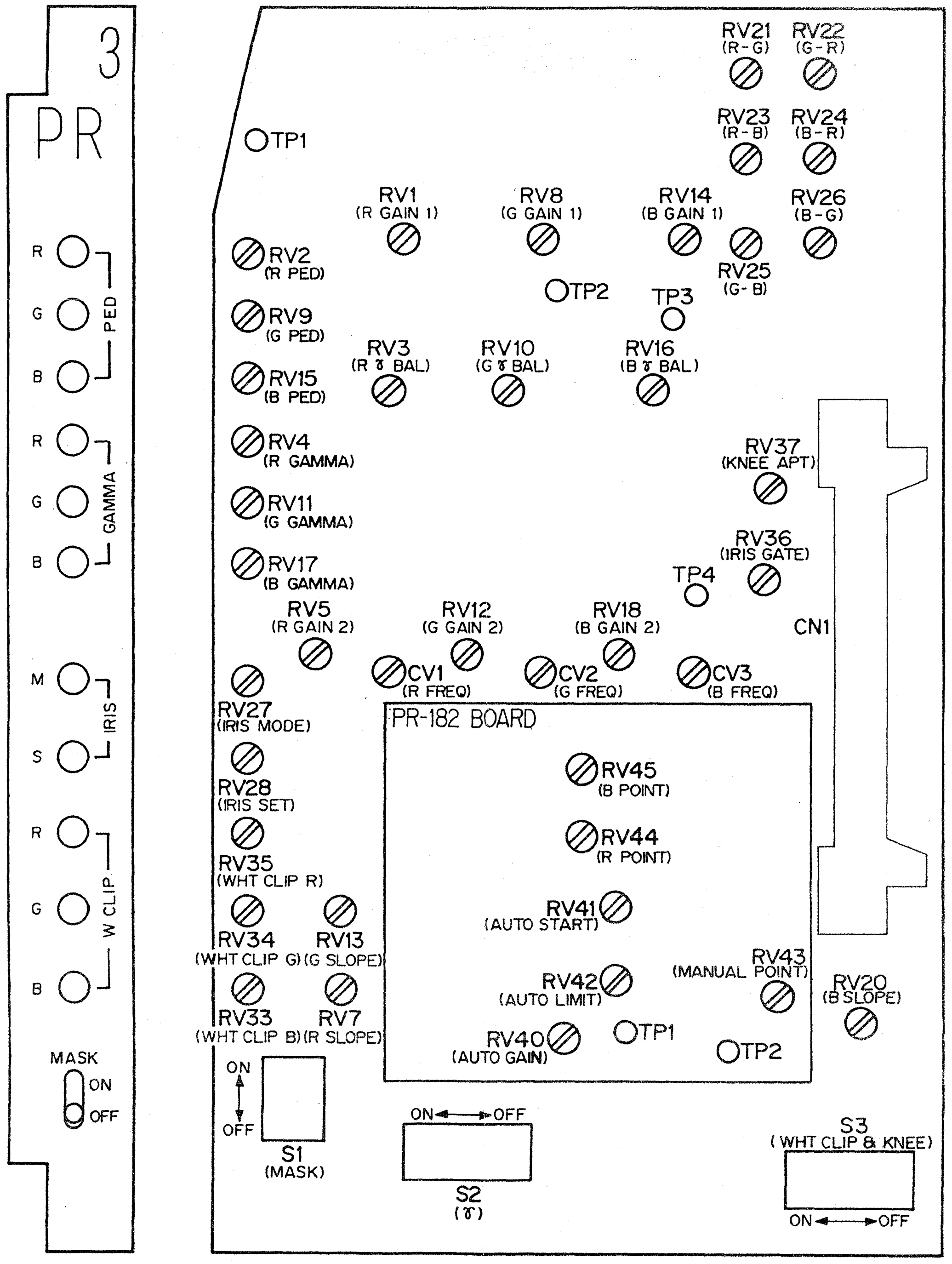

2
IE
DTL LVL
CRISP
ON
OFF
DTL
H/V RATIO
LVL DEP

(PANEL SIDE)


S3
FLM◄►FLD
RV18 (APT LEVEL)
RV17 (APT NULL)
RV21 (APT OUT LEVEL)
S2 (APERTURE)
ON◄—►OFF
RV20 (DTL CLIP)
RV15 (DTL LEV)
RV13 (BLACK BAL)
RV14 (CRISPNING)
TP5
CV4 (H DTL BAL)
RV11 (BLACK CLIP)
RV16 (APT ALIAS)
S1 (DTL)
RV9 (H DTL NULL)
TP4
RV10 (V DTL NULL)
RV12 (H/V RATIO)
RV8 (DTL ALIAS)
RV7 (LEVEL DEP 1)
RV22 (LEVEL DEP 2)
TP3
TP2
TP1
CN1
TP7
TP6
RV6 (1H LEVEL)
RV5 (R GAIN)
RV4 (B GAIN)
RV2 (G GAIN)
RV1 (1H PHASE)
CV2 (1H FREQ)
CV3 (2H FREQ)
CV1 (G FREQ RESP)

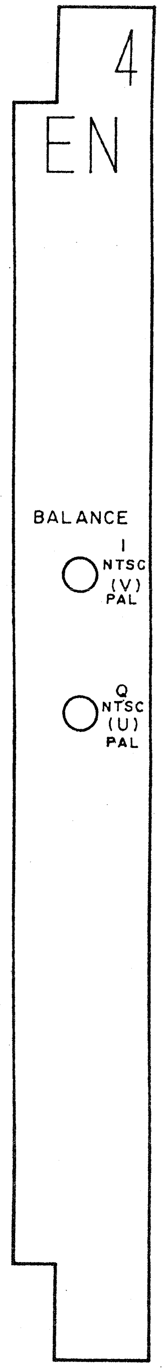
IE-39/39P BOARD (COMPONENT SIDE)

PR-179U/179 BOARD

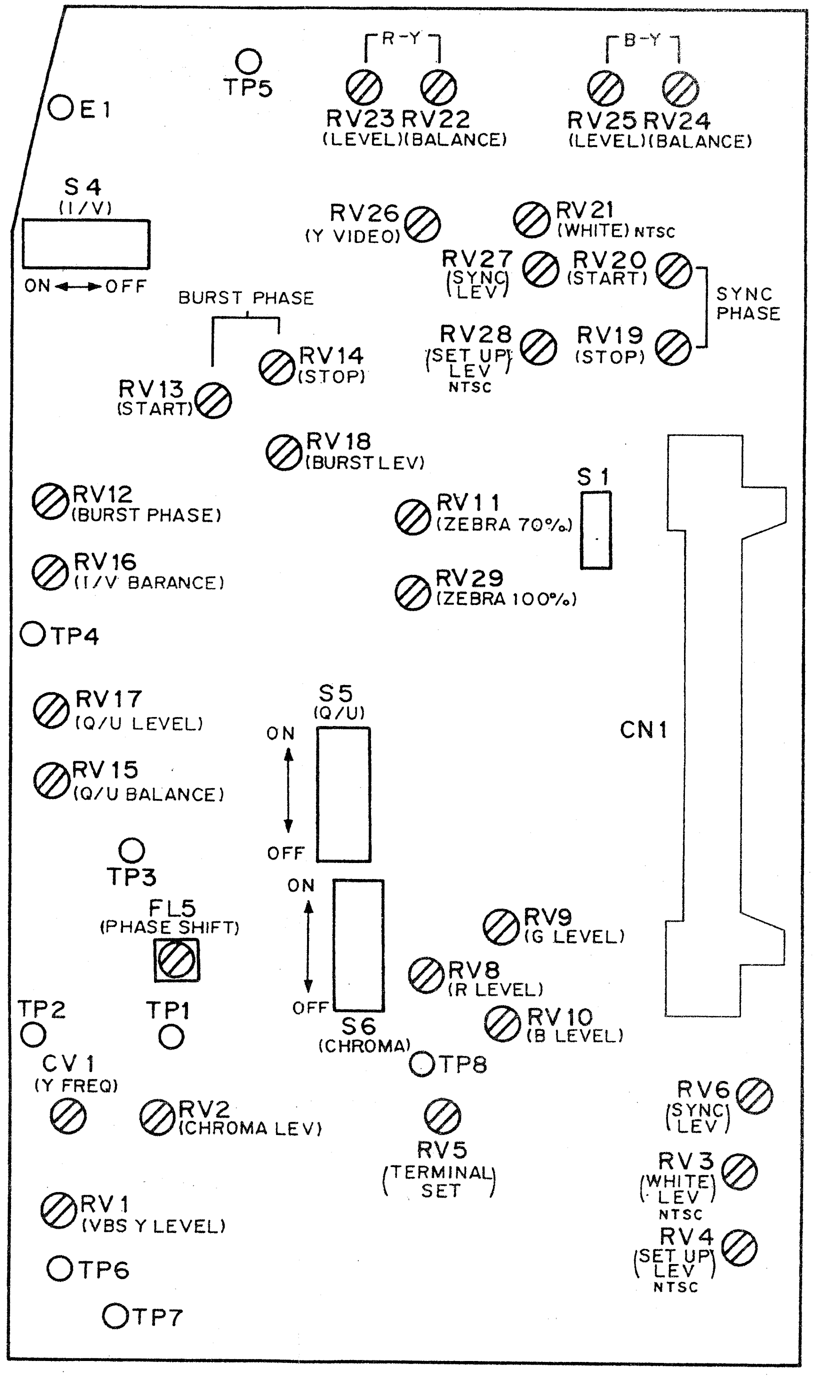

3
PR
R
G
B
PED
R
G
B
GAMMA
M
S
IRIS
R
G
B
W CLIP
MASK
ON
OFF
TP1
RV21 (R-G)
RV22 (G-R)
RV23 (R-B)
RV24 (B-R)
RV1 (R GAIN 1)
RV8 (G GAIN 1)
RV14 (B GAIN 1)
RV26 (B-G)
RV25 (G-B)
RV2 (R PED)
TP2
TP3
RV9 (G PED)
RV3 (R γ BAL)
RV10 (G γ BAL)
RV16 (B γ BAL)
RV15 (B PED)
RV4 (R GAMMA)
RV37 (KNEE APT)
RV11 (G GAMMA)
RV36 (IRIS GATE)
RV17 (B GAMMA)
TP4
RV5 (R GAIN 2)
RV12 (G GAIN 2)
RV18 (B GAIN 2)
CN1
CV1 (R FREQ)
CV2 (G FREQ)
CV3 (B FREQ)
RV27 (IRIS MODE)
PR-182 BOARD
RV45 (B POINT)
RV28 (IRIS SET)
RV44 (R POINT)
RV35 (WHT CLIP R)
RV41 (AUTO START)
RV34 (WHT CLIP G)
RV13 (G SLOPE)
RV43 (MANUAL POINT)
RV42 (AUTO LIMIT)
RV20 (B SLOPE)
RV33 (WHT CLIP B)
RV7 (R SLOPE)
RV40 (AUTO GAIN)
TP1
TP2
ON
OFF
S1 (MASK)
ON ←→ OFF
S2 (γ)
S3 (WHT CLIP & KNEE)
ON ←→ OFF

(PANEL SIDE) PR-179U/179 BOARD (COMPONENT SIDE)

EN-107/107P BOARD

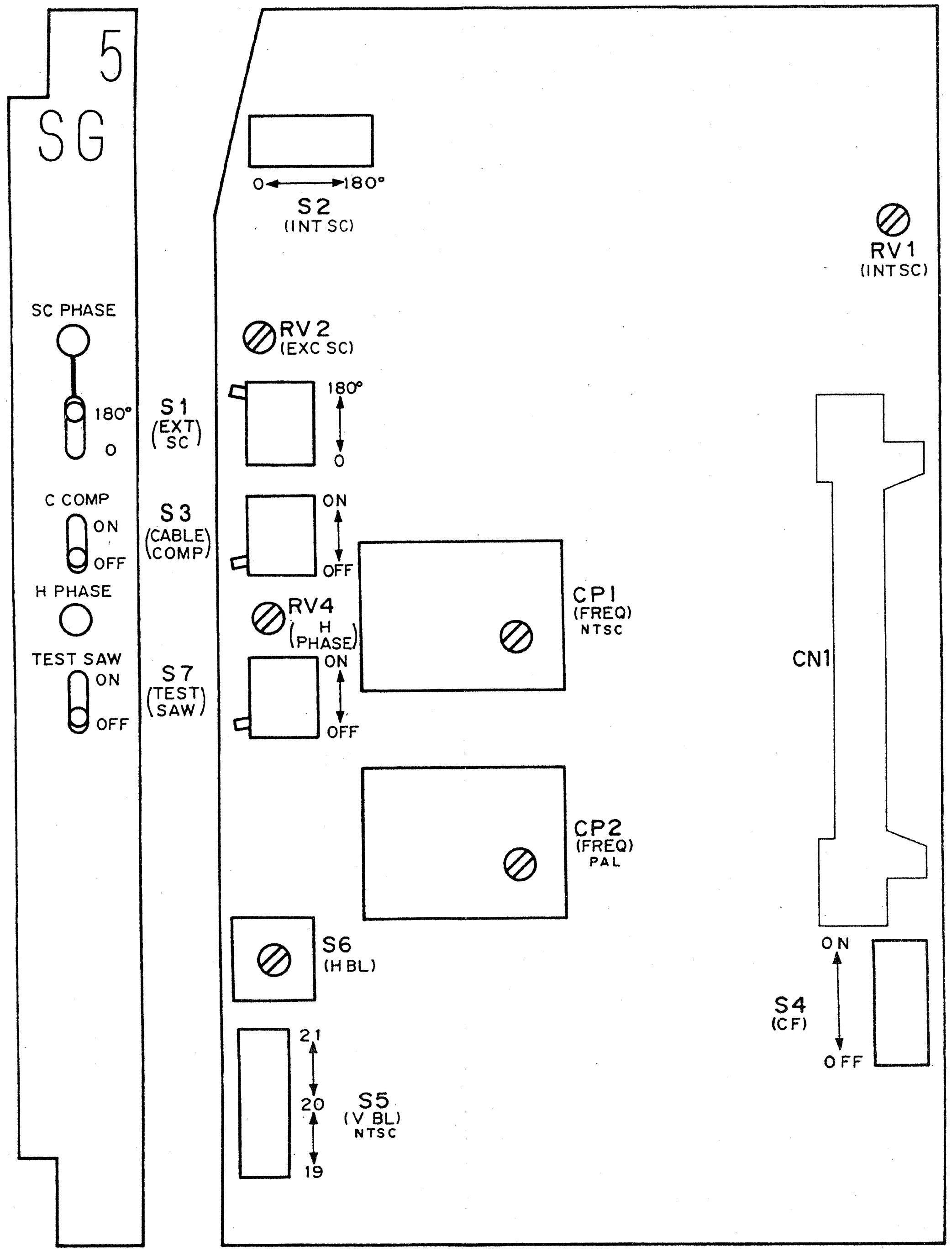

4
EN
BALANCE
I
NTSC
(V)
PAL
Q
NTSC
(U)
PAL

(PANEL SIDE)


E1
TP5
R-Y
RV23 RV22
(LEVEL)(BALANCE)
B-Y
RV25 RV24
(LEVEL)(BALANCE)
S4
(I/V)
ON←→OFF
RV26
(Y VIDEO)
RV21
(WHITE) NTSC
RV27
(SYNC LEV)
RV20
(START)
SYNC PHASE
BURST PHASE
RV14
(STOP)
RV13
(START)
RV28
(SET UP LEV)
NTSC
RV19
(STOP)
RV18
(BURST LEV)
S1
RV12
(BURST PHASE)
RV11
(ZEBRA 70%)
RV16
(I/V BARANCE)
RV29
(ZEBRA 100%)
TP4
RV17
(Q/U LEVEL)
S5
(Q/U)
ON
OFF
CN1
RV15
(Q/U BALANCE)
TP3
FL5
(PHASE SHIFT)
ON
OFF
S6
(CHROMA)
RV9
(G LEVEL)
RV8
(R LEVEL)
RV10
(B LEVEL)
TP2
TP1
TP8
CV1
(Y FREQ)
RV2
(CHROMA LEV)
RV5
(TERMINAL SET)
RV6
(SYNC LEV)
RV3
(WHITE LEV)
NTSC
RV1
(VBS Y LEVEL)
RV4
(SET UP LEV)
NTSC
TP6
TP7

EN-107/107P BOARD (COMPONENT SIDE)

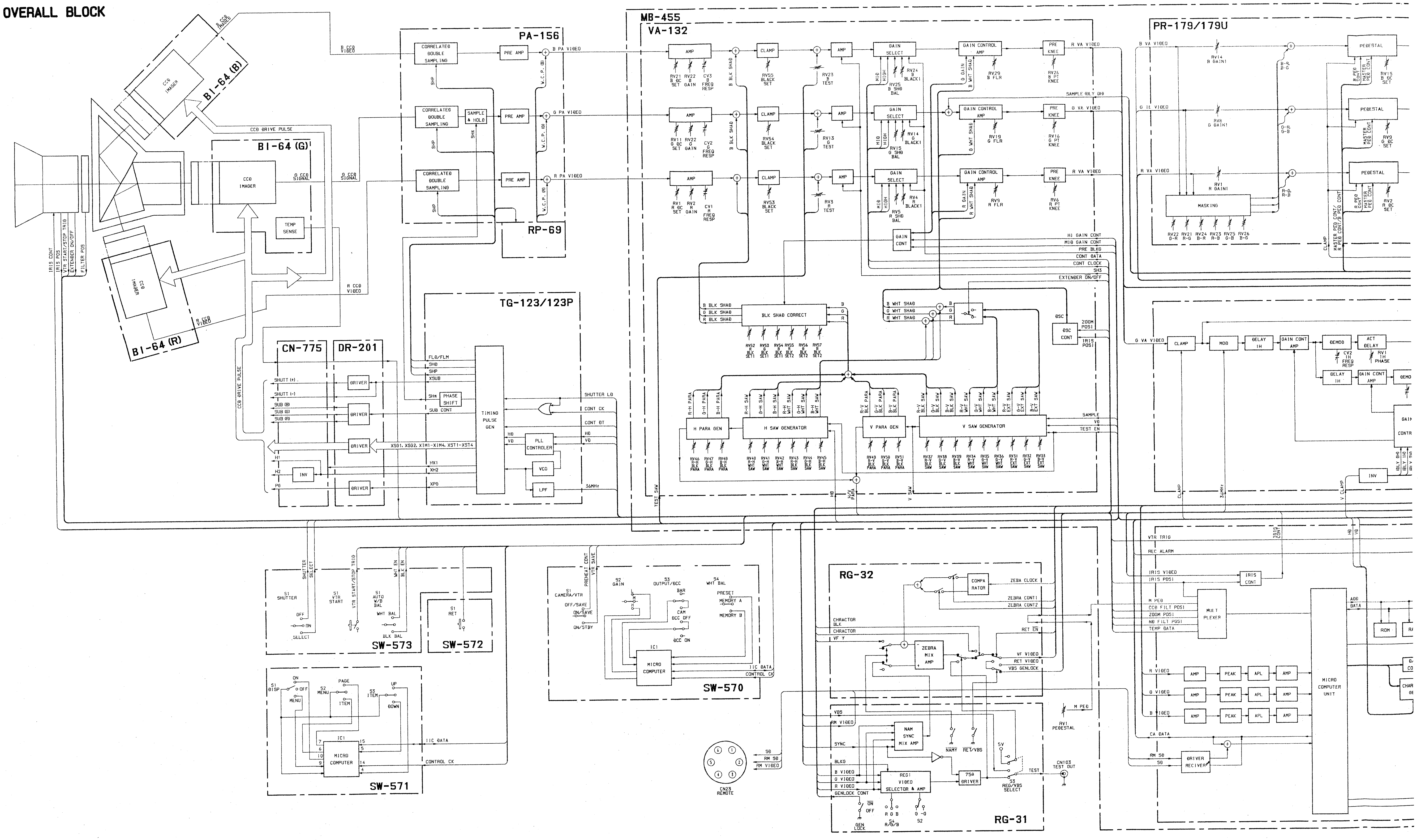
SG-206/206P BOARD

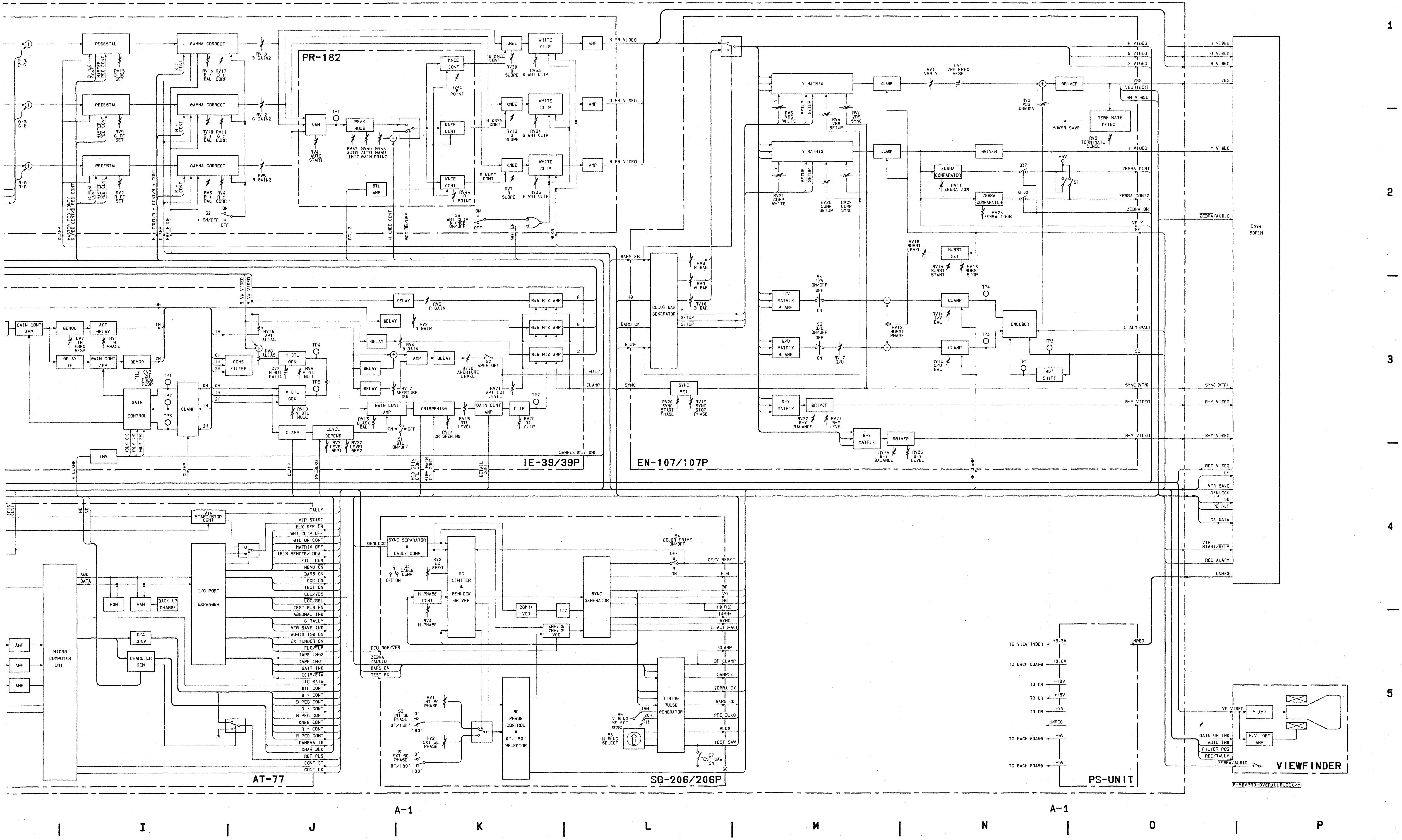

5
SG
SC PHASE
180°
0
C COMP
ON
OFF
H PHASE
TEST SAW
ON
OFF
S1 (EXT SC)
S3 (CABLE COMP)
S7 (TEST SAW)
0 ←→ 180°
S2 (INT SC)
RV1 (INT SC)
RV2 (EXC SC)
180°
0
ON
OFF
RV4 (H PHASE)
ON
OFF
CP1 (FREQ) NTSC
CP2 (FREQ) PAL
CN1
S6 (H BL)
ON
OFF
S4 (CF)
21
20
19
S5 (V BL) NTSC

(PANEL SIDE) SG-206/206P BOARD (COMPONENT SIDE)

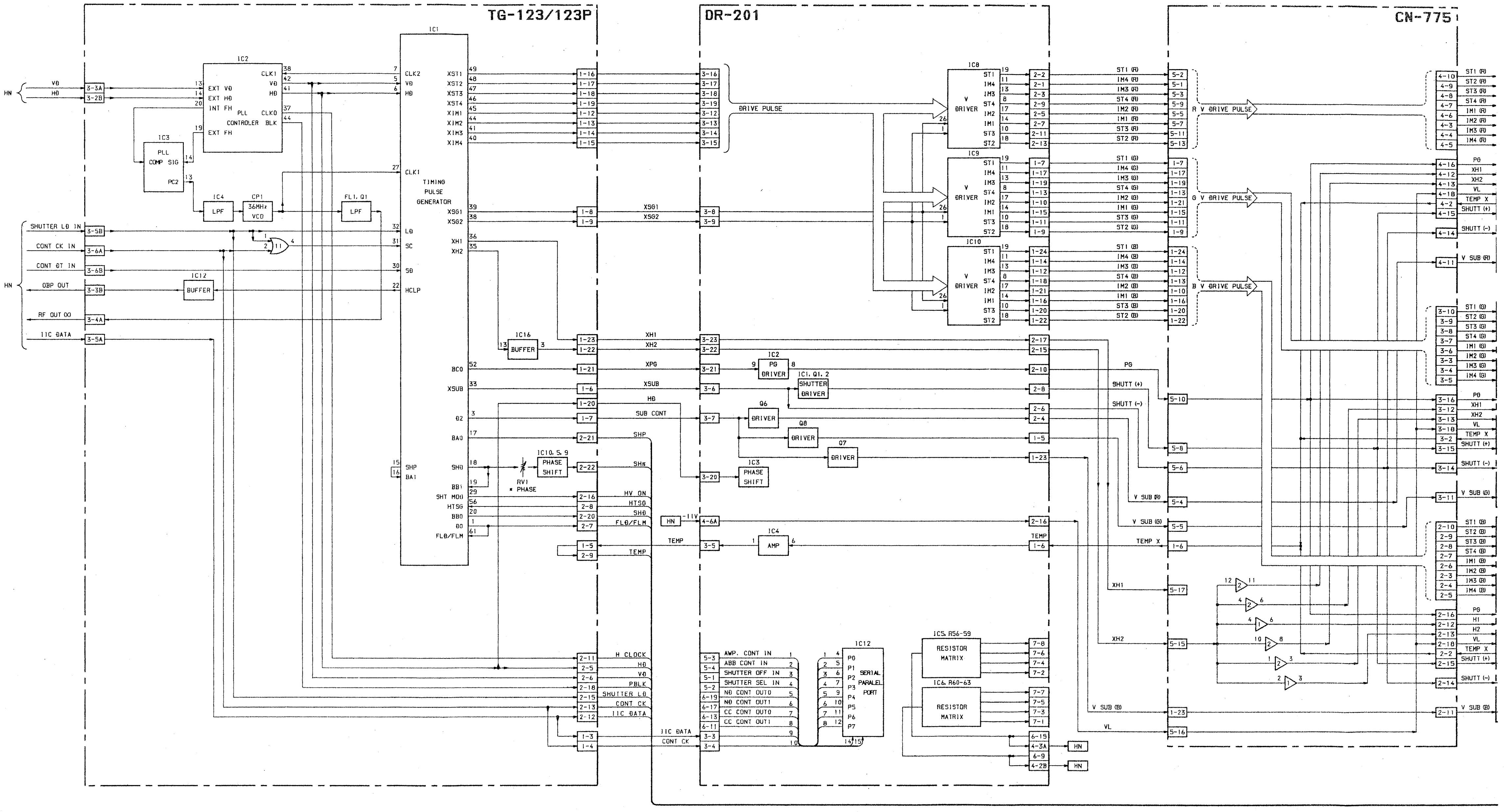
SECTION A
BLOCK DIAGRAMS

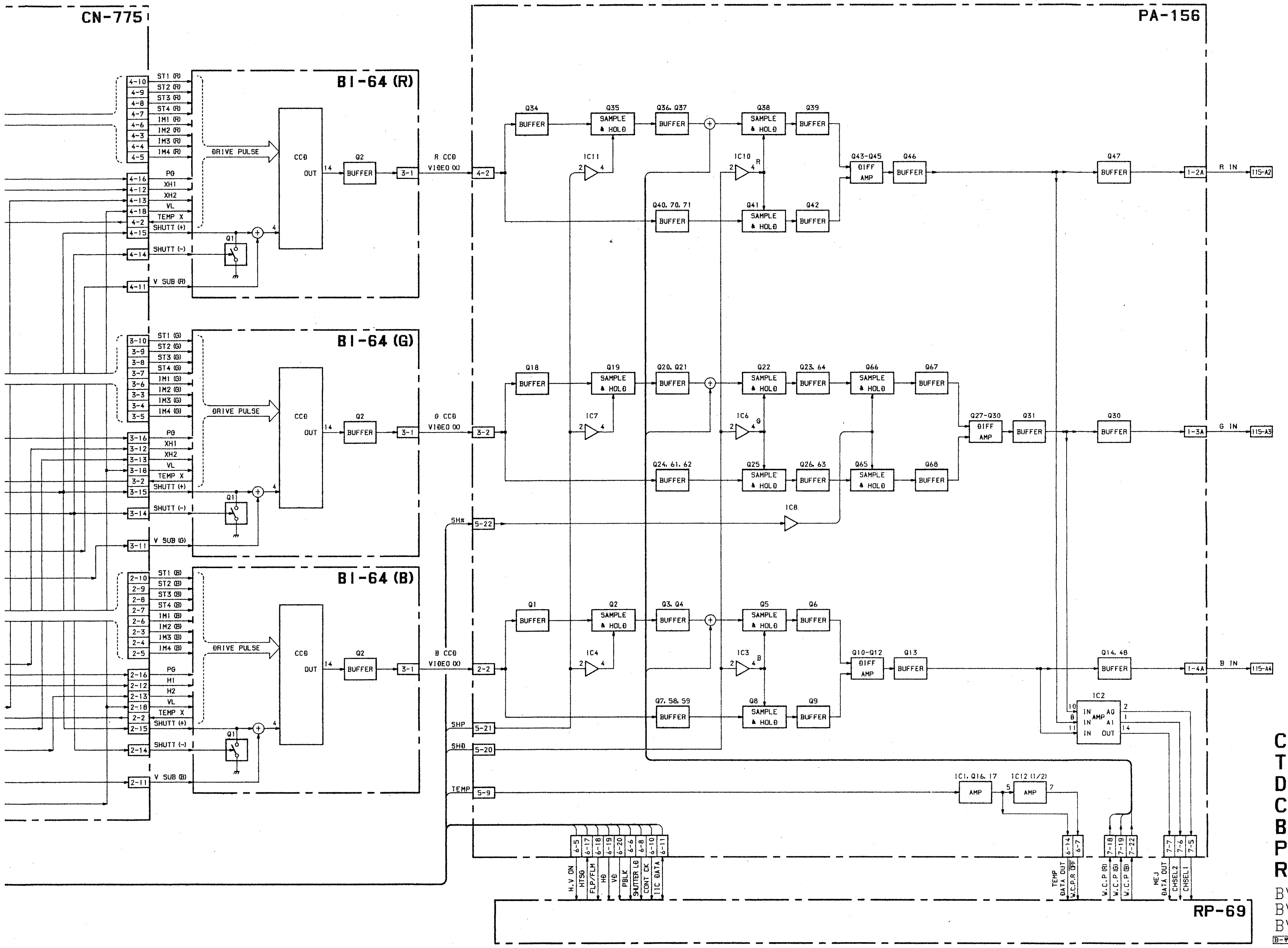
OVERALL BLOCK


BI-64 (B)
BI-64 (G)
BI-64 (R)
CCD IMAGER
TEMP SENSE
CCD DRIVE PULSE
B CCD VIDEO
G CCD SIGNAL
R CCD VIDEO
IRIS CONT
IRIS POS
VTR START/STOP TRIG
EXTENDER ON/OFF
FILTER POS
PA-156
CORRELATED DOUBLE SAMPLING
SAMPLE & HOLD
PRE AMP
B PA VIDEO
G PA VIDEO
R PA VIDEO
W.C.P. (B)
W.C.P. (G)
W.C.P. (R)
SHP
SHD
RP-69
TG-123/123P
TIMING PULSE GEN
PHASE SHIFT
PLL CONTROLER
VCO
LPF
36MHz
SHUTTER LD
CONT CK
CONT DT
HD
VD
FLD/FLM
XSUB
SUB CONT
XSG1, XSG2, XIM1-XIM4, XST1-XST4
HX1
XH2
XPG
CN-775
DR-201
DRIVER
INV
SHUTT (+)
SHUTT (-)
SUB
H1
H2
PG
CCD DRIVE PULSE
MB-455
VA-132
AMP
CLAMP
GAIN SELECT
GAIN CONTROL AMP
PRE KNEE
R VA VIDEO
G VA VIDEO
B VA VIDEO
RV21 B DC SET
RV22 B GAIN
CV3 B FREQ RESP
RV55 BLACK SET
RV23 B TEST
RV29 B FLR
RV26 B PT KNEE
RV11 G DC SET
RV22 G GAIN
CV2 G FREQ RESP
RV54 BLACK SET
RV13 G TEST
RV19 G FLR
RV16 G PT KNEE
RV1 R DC SET
RV2 R GAIN
CV1 R FREQ RESP
RV53 BLACK SET
RV3 R TEST
RV9 R FLR
RV6 R PT KNEE
RV24 B BLACK1
RV25 B SHD BAL
RV14 G BLACK1
RV15 G SHD BAL
RV4 R BLACK1
RV5 R SHD BAL
GAIN CONT
HI GAIN CONT
MID GAIN CONT
PRE BLKG
CONT DATA
CONT CLOCK
SH3
EXTENDER ON/OFF
SAMPLE (BLY GH)
BLK SHAD CORRECT
B BLK SHAD
G BLK SHAD
R BLK SHAD
B WHT SHAD
G WHT SHAD
R WHT SHAD
RV52 RV53 RV54 RV55 RV56 RV57
OSC CONT
ZOOM POSI
IRIS POSI
H PARA GEN
H SAW GENERATOR
V PARA GEN
V SAW GENERATOR
SAMPLE
VD
TEST EN
TEST SAW
HD
V PARA
V SAW
PR-179/179U
PEDESTAL
MASKING
RV14 B GAIN1
RV8 G GAIN1
RV1 R GAIN1
RV15 B DC SET
RV9 G DC SET
RV2 R DC SET
MASTER PED CONT
RV22 G-R
RV21 R-G
RV24 B-R
RV23 R-B
RV25 G-B
RV26 B-G
G VA VIDEO
CLAMP
MOD
DELAY 1H
GAIN CONT AMP
DEMOD
ACT DELAY
CV2 1H FREQ RESP
RV1 1H PHASE
INV
SW-573
S1 SHUTTER
OFF
ON
SELECT
S1 VTR START
S1 AUTO W/B BAL
WHT BAL
BLK BAL
SW-572
S1 RET
SW-571
S1 DISP
S2 MENU
S3 ITEM
PAGE
UP
DOWN
IC1 MICRO COMPUTER
IIC DATA
CONTROL CK
SW-570
S1 CAMERA/VTR
OFF/SAVE
ON/SAVE
ON/STBY
S2 GAIN
S3 OUTPUT/DCC
BAR
CAM
DCC OFF
DCC ON
S4 WHT BAL
PRESET
MEMORY A
MEMORY B
PREHEAT CONT
VTR SAVE
RG-32
COMPARATOR
ZEBA CLOCK
ZEBRA CONT1
ZEBRA CONT2
CHRACTOR BLK
CHRACTOR
VF Y
ZEBRA MIX AMP
RET EN
VF VIDEO
RET VIDEO
VBS GENLOCK
RG-31
VBS
RM VIDEO
SYNC
BLKG
NAM SYNC MIX AMP
NAMY
RET/VBS
75Ω DRIVER
REG1 VIDEO SELECTOR & AMP
GENLOCK CONT
GEN LOCK
S1 ON OFF
S4 R/G/B
S2
S3 REG/VBS SELECT
5V
TEST
CN103 TEST OUT
CN23 REMOTE
SD
RM SD
RV1 PEDESTAL
M PED
VTR TRIG
REC ALARM
IRIS VIDEO
IRIS POSI
IRIS CONT
CCD FILT POSI
ZOOM POSI
ND FILT POSI
TEMP DATA
MULTI PLEXER
MICRO COMPUTER UNIT
ROM
ADD DATA
R VIDEO
G VIDEO
B VIDEO
PEAK
APL
CA DATA
DRIVER RECIVER


PR-182
PEDESTAL
GAMMA CORRECT
NAM
PEAK HOLD
KNEE CONT
KNEE
WHITE CLIP
AMP
B PR VIDEO
G PR VIDEO
R PR VIDEO
DTL AMP
IE-39/39P
GAIN CONT AMP
DEMOD
ACT DELAY
DELAY 1H
COMB FILTER
H DTL GEN
V DTL GEN
GAIN CONTROL
CLAMP
LEVEL DEPEND
CRISPENING
CLIP
Rch MIX AMP
Gch MIX AMP
Bch MIX AMP
INV
EN-107/107P
COLOR BAR GENERATOR
Y MATRIX
I/V MATRIX & AMP
Q/U MATRIX & AMP
R-Y MATRIX
B-Y MATRIX
DRIVER
ZEBRA COMPARATOR
BURST SET
ENCODER
90° SHIFT
SYNC SET
TERMINATE DETECT
POWER SAVE
CN24 50PIN
R VIDEO
G VIDEO
B VIDEO
VBS
Y VIDEO
R-Y VIDEO
B-Y VIDEO
SYNC (VTR)
L ALT (PAL)
RET VIDEO
GENLOCK
AT-77
MICRO COMPUTER UNIT
I/O PORT EXPANDER
ROM
RAM
BACK UP CHARGE
D/A CONV
CHARCTER GEN
VTR START/STOP CONT
SG-206/206P
SYNC SEPARATOR & CABLE COMP
SC LIMITER & GENLOCK DRIVER
H PHASE CONT
28MHz VCO
1/2
14MHz (N) 17MHz (P) VCO
SYNC GENERATOR
TIMING PULSE GENERATOR
SC PHASE CONTROL & 0°/180° SELECTOR
PS-UNIT
TO VIEWFINDER +9.3V
TO EACH BOARD +8.8V
TO DR -10V
TO DR +15V
TO DR +7V
TO EACH BOARD +5V
TO EACH BOARD +5V
VIEWFINDER
Y AMP
H.V. DEF AMP
A-1
I
J
K
L
M
N
O
P
1
2
3
4
5
B-WBVP90-OVERALLBLOCK/M

CCD BLOCK


TG-123/123P
DR-201
CN-775
IC1
TIMING PULSE GENERATOR
IC2
PLL CONTROLER
IC3
PLL COMP SIG
IC4
LPF
CP1
36MHz VCO
FL1, Q1
LPF
IC12
BUFFER
IC16
BUFFER
IC10, 5, 9
PHASE SHIFT
RV1
* PHASE
HN
VD
HD
SHUTTER LD IN
CONT CK IN
CONT DT IN
OBP OUT
RF OUT OO
IIC DATA
XSG1
XSG2
XH1
XH2
XPG
XSUB
HD
SUB CONT
SHP
SHs
HV ON
HTSO
SHG
FLD/FLM
TEMP
H CLOCK
HD
VD
PBLK
SHUTTER LD
CONT CK
IIC DATA
CONT CK
DRIVE PULSE
IC8
V DRIVER
IC9
V DRIVER
IC10
V DRIVER
IC2
PG DRIVER
IC1, Q1, 2
SHUTTER DRIVER
Q6
DRIVER
Q8
DRIVER
Q7
DRIVER
IC3
PHASE SHIFT
IC4
AMP
IC5, R56-59
RESISTOR MATRIX
IC6, R60-63
RESISTOR MATRIX
IC12
SERIAL PARALEL PORT
AMP. CONT IN
ABB CONT IN
SHUTTER OFF IN
SHUTTER SEL IN
ND CONT OUTO
ND CONT OUT1
CC CONT OUTO
CC CONT OUT1
R V DRIVE PULSE
G V DRIVE PULSE
B V DRIVE PULSE
PG
SHUTT (+)
SHUTT (-)
V SUB (R)
V SUB (G)
V SUB (B)
TEMP X
XH1
XH2
VL
ST1
ST2
ST3
ST4
IM1
IM2
IM3
IM4

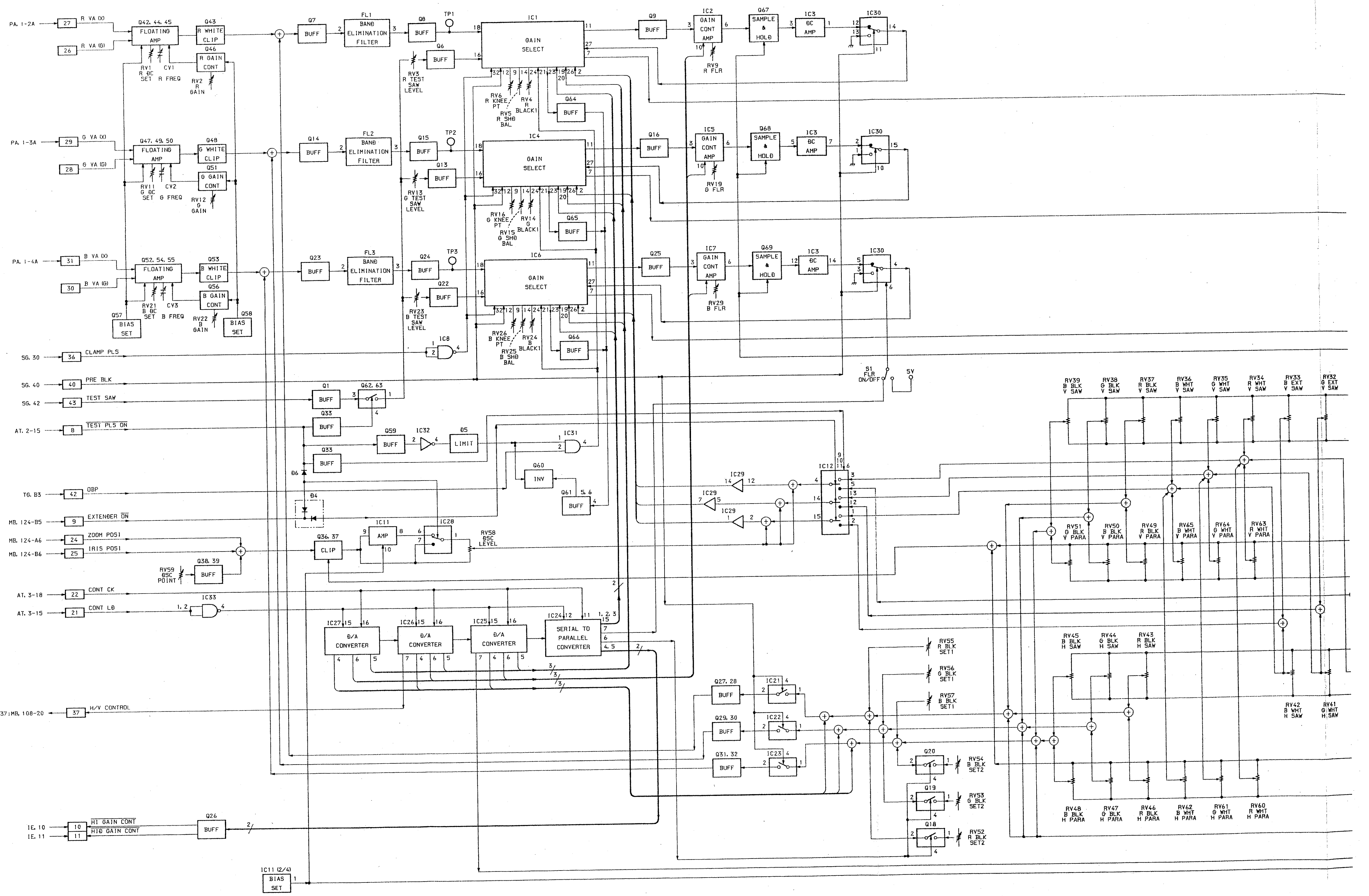

CN-775
PA-156
BI-64 (R)
BI-64 (G)
BI-64 (B)
RP-69
ST1 (R)
ST2 (R)
ST3 (R)
ST4 (R)
IM1 (R)
IM2 (R)
IM3 (R)
IM4 (R)
PG
XH1
XH2
VL
TEMP X
SHUTT (+)
SHUTT (-)
V SUB (R)
V SUB (G)
V SUB (B)
DRIVE PULSE
CCD
OUT
Q1
Q2
BUFFER
R CCD VIDEO (X)
G CCD VIDEO (X)
B CCD VIDEO (X)
SAMPLE & HOLD
DIFF AMP
IC11
IC10
IC7
IC6
IC8
IC4
IC3
IC2
Q34
Q35
Q36, Q37
Q38
Q39
Q40, 70, 71
Q41
Q42
Q43-Q45
Q46
Q47
Q18
Q19
Q20, Q21
Q22
Q23, 64
Q66
Q67
Q24, 61, 62
Q25
Q26, 63
Q65
Q68
Q27-Q30
Q31
Q30
Q3, Q4
Q5
Q6
Q7, 58, 59
Q8
Q9
Q10-Q12
Q13
Q14, 48
R IN
G IN
B IN
SHP
SHD
TEMP
AMP
IC1, Q16, 17
IC12 (1/2)
H.V ON
HTRG
FLP/FLM
HD
VD
PBLK
SHUTTER LD
CONT CK
IIC DATA
TEMP
DATA OUT
V.C.P.R OFF
V.C.P (R)
V.C.P (G)
V.C.P (B)
MEJ
DATA OUT
CHSEL2
CHSEL1

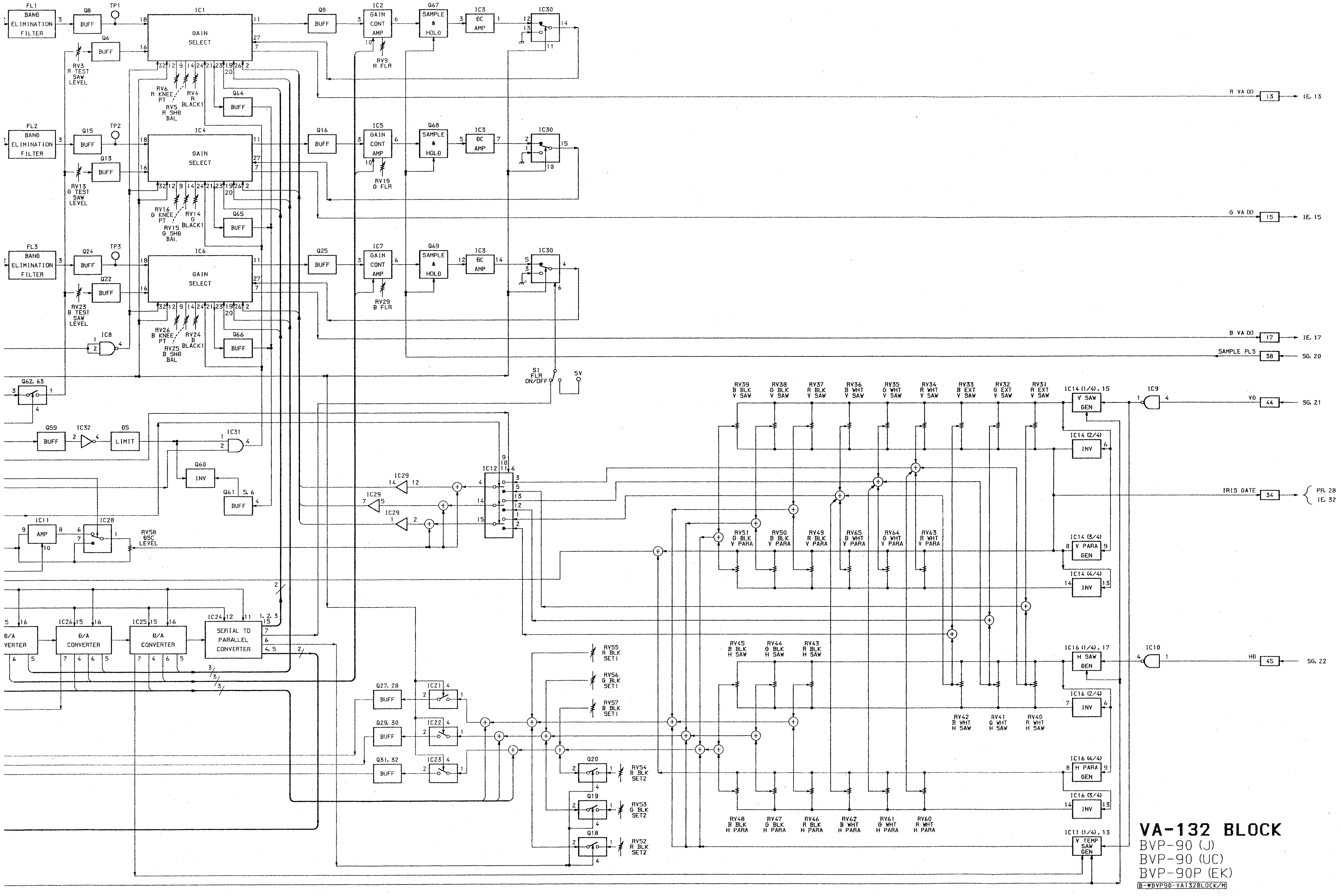
CCD BLOCK
TG-123/123P BOARD
DR-201 BOARD
CN-775 BOARD
BI-64 (R/G/B) BOARD
PA-156 BOARD
RP-69 BOARD

BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)

B-#BVP90-CCDBLOCK/M

VA-132 BLOCK


PA. 1-2A
R VA (X)
R VA (G)
Q42, 44, 45
FLOATING AMP
Q43
R WHITE CLIP
Q46
R GAIN CONT
RV1 R 0C SET
CV1 R FREQ
RV2 R GAIN
Q7
BUFF
FL1
BAND ELIMINATION FILTER
Q8
TP1
Q6
RV3 R TEST SAW LEVEL
IC1
GAIN SELECT
RV6 R KNEE PT
RV4 R BLACK1
RV5 R SHD BAL
Q64
Q9
IC2
GAIN CONT AMP
RV9 R FLR
Q67
SAMPLE & HOLD
IC3
0C AMP
IC30
PA. 1-3A
G VA (X)
G VA (G)
Q47, 49, 50
Q48
G WHITE CLIP
Q51
G GAIN CONT
RV11 G 0C SET
CV2 G FREQ
RV12 G GAIN
Q14
FL2
Q15
TP2
Q13
RV13 G TEST SAW LEVEL
IC4
RV16 G KNEE PT
RV14 G BLACK1
RV15 G SHD BAL
Q65
Q16
IC5
RV19 G FLR
Q68
PA. 1-4A
B VA (X)
B VA (G)
Q52, 54, 55
Q53
B WHITE CLIP
Q56
B GAIN CONT
RV21 B 0C SET
CV3 B FREQ
RV22 B GAIN
Q57
BIAS SET
Q58
Q23
FL3
Q24
TP3
Q22
RV23 B TEST SAW LEVEL
IC6
RV26 B KNEE PT
RV24 B BLACK1
RV25 B SHD BAL
Q66
Q25
IC7
RV29 B FLR
Q69
IC8
SG. 30
CLAMP PLS
SG. 40
PRE BLK
SG. 42
TEST SAW
AT. 2-15
TEST PLS ON
Q1
Q62, 63
Q33
Q59
IC32
Q5
LIMIT
IC31
Q60
INV
Q61
D4
D6
TG. B3
OBP
MB. 124-B5
EXTENDER ON
MB. 124-A6
ZOOM POSI
MB. 124-B6
IRIS POSI
IC11
AMP
IC28
RV58 0SC LEVEL
Q36, 37
CLIP
RV59 0SC POINT
Q38, 39
AT. 3-18
CONT CK
AT. 3-15
CONT LD
IC33
IC27
IC26
IC25
D/A CONVERTER
IC24
SERIAL TO PARALLEL CONVERTER
IE. 37; MB. 108-20
H/V CONTROL
IE. 10
IE. 11
HI GAIN CONT
HID GAIN CONT
Q26
IC11 (2/4)
BIAS SET
S1
FLR ON/OFF
5V
IC29
IC12
RV39 B BLK V SAW
RV38 G BLK V SAW
RV37 R BLK V SAW
RV36 B WHT V SAW
RV35 G WHT V SAW
RV34 R WHT V SAW
RV33 B EXT V SAW
RV32 G EXT V SAW
RV51 G BLK V PARA
RV50 B BLK V PARA
RV49 R BLK V PARA
RV65 B WHT V PARA
RV64 G WHT V PARA
RV63 R WHT V PARA
RV45 B BLK H SAW
RV44 G BLK H SAW
RV43 R BLK H SAW
RV42 B WHT H SAW
RV41 G WHT H SAW
RV55 R BLK SET1
RV56 G BLK SET1
RV57 B BLK SET1
Q27, 28
Q29, 30
Q31, 32
IC21
IC22
IC23
Q20
Q19
Q18
RV54 B BLK SET2
RV53 G BLK SET2
RV52 R BLK SET2
RV48 B BLK H PARA
RV47 G BLK H PARA
RV46 R BLK H PARA
RV62 B WHT H PARA
RV61 G WHT H PARA
RV60 R WHT H PARA

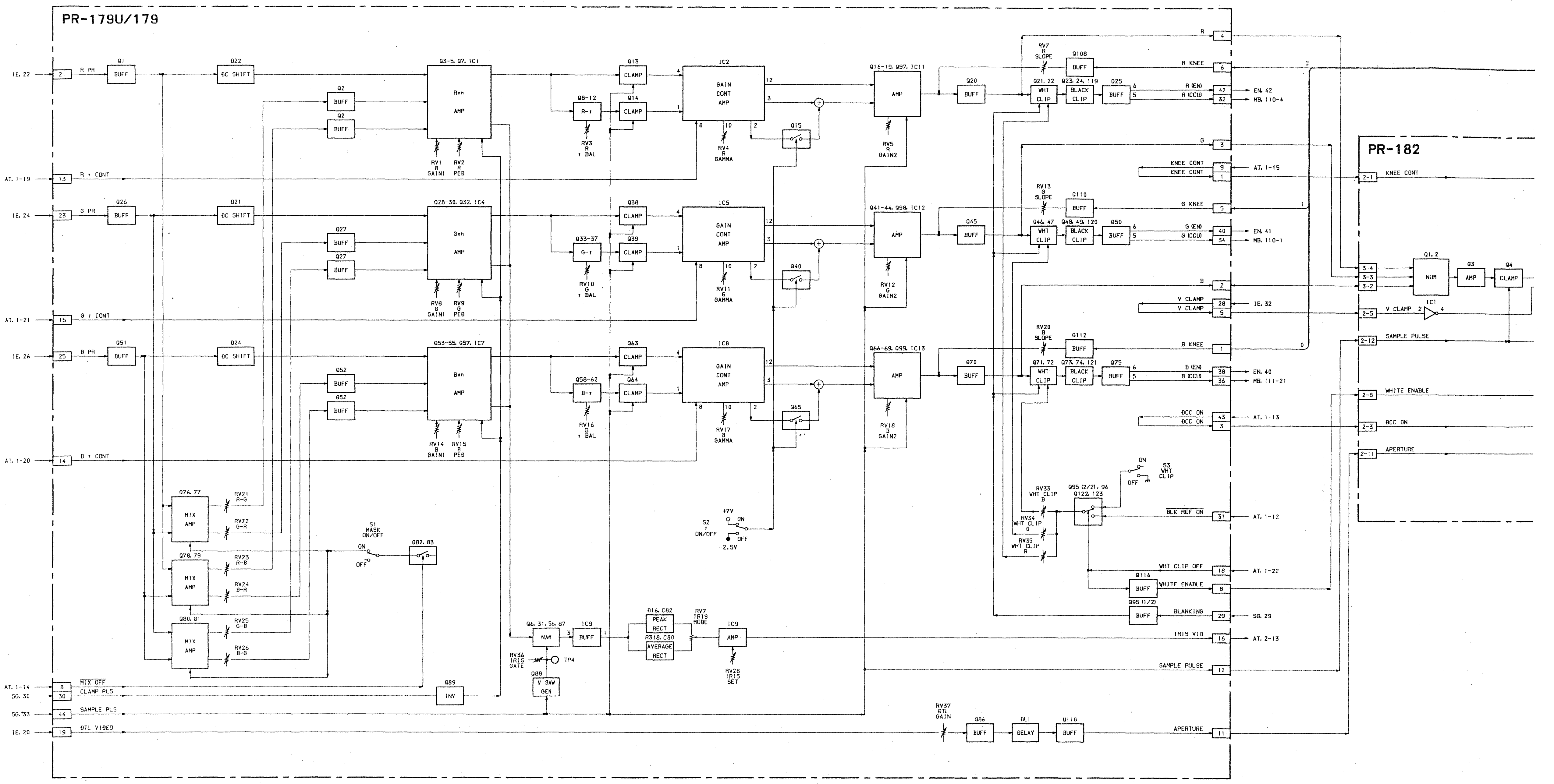

FL1
BAND ELIMINATION FILTER
Q8
BUFF
TP1
IC1
GAIN SELECT
Q6
BUFF
RV3
R TEST SAW LEVEL
RV6
R KNEE PT
RV4
R BLACK1
RV5
R SHD BAL
Q64
BUFF
Q9
BUFF
IC2
GAIN CONT AMP
RV9
R FLR
Q67
SAMPLE & HOLD
IC3
DC AMP
IC30
FL2
BAND ELIMINATION FILTER
Q15
BUFF
TP2
IC4
GAIN SELECT
Q13
BUFF
RV13
G TEST SAW LEVEL
RV16
G KNEE PT
RV14
G BLACK1
RV15
G SHD BAL
Q65
BUFF
Q16
BUFF
IC5
GAIN CONT AMP
RV19
G FLR
Q68
SAMPLE & HOLD
IC3
DC AMP
IC30
FL3
BAND ELIMINATION FILTER
Q24
BUFF
TP3
IC6
GAIN SELECT
Q22
BUFF
RV23
B TEST SAW LEVEL
RV26
B KNEE PT
RV24
B BLACK1
RV25
B SHD BAL
Q66
BUFF
Q25
BUFF
IC7
GAIN CONT AMP
RV29
B FLR
Q69
SAMPLE & HOLD
IC3
DC AMP
IC30
IC8
Q62, 63
S1
FLR ON/OFF
5V
R VA (X)
13
IE. 13
G VA (X)
15
IE. 15
B VA (X)
17
IE. 17
SAMPLE PLS
38
SG. 20
Q59
BUFF
IC32
D5
LIMIT
IC31
Q60
INV
Q61
BUFF
IC11
AMP
IC28
RV58
OSC LEVEL
IC29
IC29
IC29
IC12
D/A CONVERTER
IC26
D/A CONVERTER
IC25
D/A CONVERTER
IC24
SERIAL TO PARALLEL CONVERTER
Q27, 28
BUFF
IC21
Q29, 30
BUFF
IC22
Q31, 32
BUFF
IC23
RV55
R BLK SET1
RV56
G BLK SET1
RV57
B BLK SET1
Q20
RV54
B BLK SET2
Q19
RV53
G BLK SET2
Q18
RV52
R BLK SET2
RV39
B BLK V SAW
RV38
G BLK V SAW
RV37
R BLK V SAW
RV36
B WHT V SAW
RV35
G WHT V SAW
RV34
R WHT V SAW
RV33
B EXT V SAW
RV32
G EXT V SAW
RV31
R EXT V SAW
IC14 (1/4), 15
V SAW GEN
IC9
VD
44
SG. 21
IC14 (2/4)
INV
IRIS GATE
34
PR. 28
IE. 32
RV51
G BLK V PARA
RV50
B BLK V PARA
RV49
R BLK V PARA
RV65
B WHT V PARA
RV64
G WHT V PARA
RV63
R WHT V PARA
IC14 (3/4)
V PARA GEN
IC14 (4/4)
INV
RV45
B BLK H SAW
RV44
G BLK H SAW
RV43
R BLK H SAW
IC16 (1/4), 17
H SAW GEN
IC10
HD
45
SG. 22
IC16 (2/4)
INV
RV42
B WHT H SAW
RV41
G WHT H SAW
RV40
R WHT H SAW
IC16 (4/4)
H PARA GEN
IC16 (3/4)
INV
RV48
B BLK H PARA
RV47
G BLK H PARA
RV46
R BLK H PARA
RV62
B WHT H PARA
RV61
G WHT H PARA
RV60
R WHT H PARA
IC11 (1/4), 13
V TEMP SAW GEN

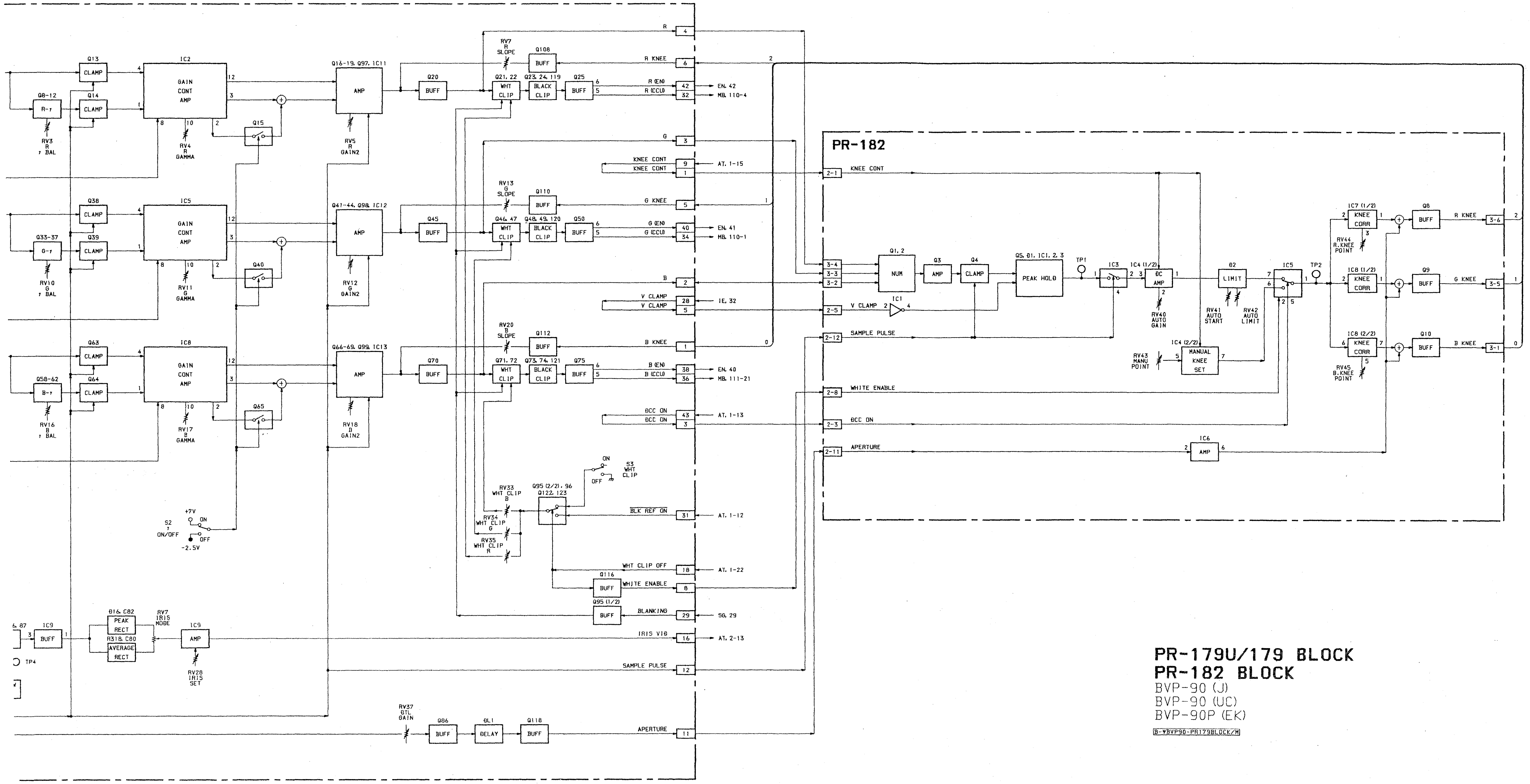
VA-132 BLOCK

BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)

B-¥BVP90-VA132BLOCK/M

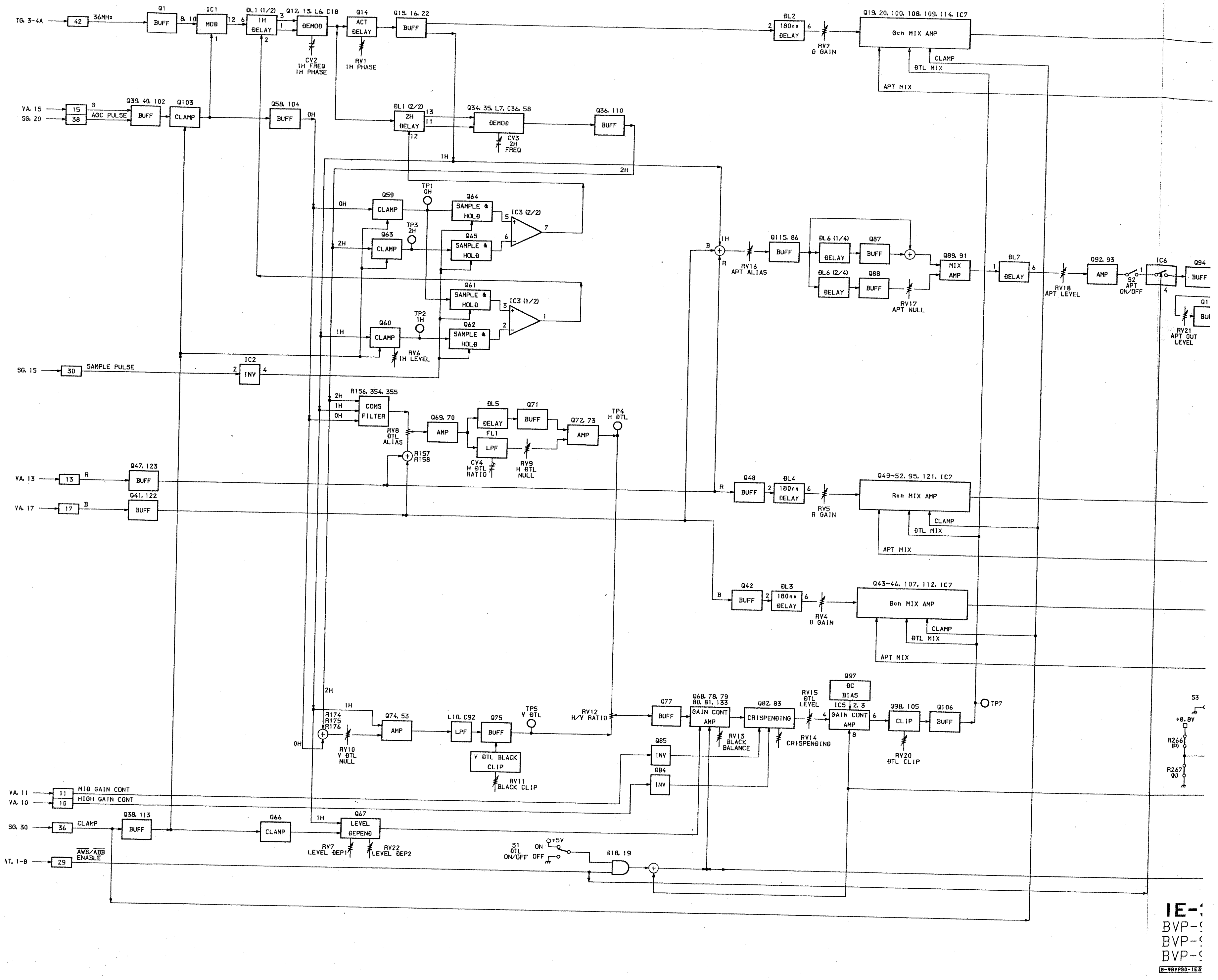
PR-179U/179 BLOCK
PR-182 BLOCK

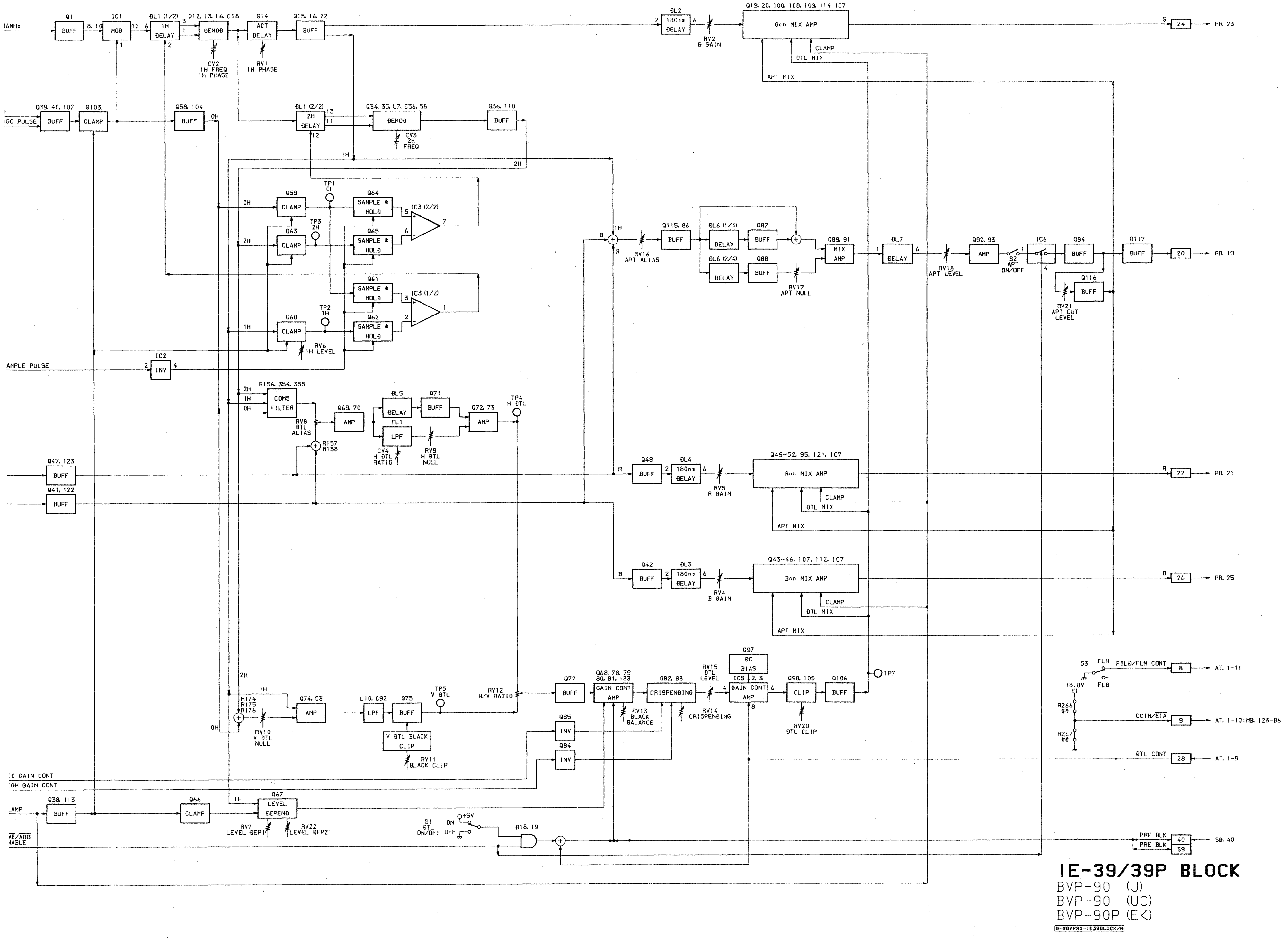

PR-179U/179
IE. 22
21
R PR
Q1
BUFF
D22
DC SHIFT
Q2
BUFF
Q2
BUFF
Q3-5, Q7, IC1
Rch
AMP
RV1
R
GAIN1
RV2
R
PED
Q13
CLAMP
Q8-12
R-γ
Q14
CLAMP
RV3
R
γ BAL
IC2
GAIN
CONT
AMP
RV4
R
GAMMA
Q15
Q16-19, Q97, IC11
AMP
RV5
R
GAIN2
Q20
BUFF
RV7
R
SLOPE
Q108
BUFF
Q21, 22
WHT
CLIP
Q23, 24, 119
BLACK
CLIP
Q25
BUFF
R
4
R KNEE
6
R (EN)
42
EN. 42
R (CCU)
32
MB. 110-4
AT. 1-19
13
R γ CONT
IE. 24
23
G PR
Q26
BUFF
D21
DC SHIFT
Q27
BUFF
Q27
BUFF
Q28-30, Q32, IC4
Gch
AMP
RV8
G
GAIN1
RV9
G
PED
Q38
CLAMP
Q33-37
G-γ
Q39
CLAMP
RV10
G
γ BAL
IC5
GAIN
CONT
AMP
RV11
G
GAMMA
Q40
Q41-44, Q98, IC12
AMP
RV12
G
GAIN2
Q45
BUFF
RV13
G
SLOPE
Q110
BUFF
Q46, 47
WHT
CLIP
Q48, 49, 120
BLACK
CLIP
Q50
BUFF
G
3
KNEE CONT
9
AT. 1-15
KNEE CONT
1
G KNEE
5
G (EN)
40
EN. 41
G (CCU)
34
MB. 110-1
AT. 1-21
15
G γ CONT
IE. 26
25
B PR
Q51
BUFF
D24
DC SHIFT
Q52
BUFF
Q52
BUFF
Q53-55, Q57, IC7
Bch
AMP
RV14
B
GAIN1
RV15
B
PED
Q63
CLAMP
Q58-62
B-γ
Q64
CLAMP
RV16
B
γ BAL
IC8
GAIN
CONT
AMP
RV17
B
GAMMA
Q65
Q66-69, Q99, IC13
AMP
RV18
B
GAIN2
Q70
BUFF
RV20
B
SLOPE
Q112
BUFF
Q71, 72
WHT
CLIP
Q73, 74, 121
BLACK
CLIP
Q75
BUFF
B
2
V CLAMP
28
IE. 32
V CLAMP
5
B KNEE
1
B (EN)
38
EN. 40
B (CCU)
36
MB. 111-21
DCC ON
43
AT. 1-13
DCC ON
3
AT. 1-20
14
B γ CONT
Q76, 77
MIX
AMP
RV21
R-G
RV22
G-R
Q78, 79
MIX
AMP
RV23
R-B
RV24
B-R
Q80, 81
MIX
AMP
RV25
G-B
RV26
B-G
S1
MASK
ON/OFF
ON
OFF
Q82, 83
S2
γ
ON/OFF
+7V
ON
OFF
-2.5V
S3
WHT
CLIP
ON
OFF
RV33
WHT CLIP
B
RV34
WHT CLIP
G
RV35
WHT CLIP
R
Q95 (2/2), 96
Q122, 123
BLK REF ON
31
AT. 1-12
WHT CLIP OFF
18
AT. 1-22
Q116
BUFF
WHITE ENABLE
8
Q95 (1/2)
BUFF
BLANKING
29
SG. 29
Q6, 31, 56, 87
NAM
IC9
BUFF
D16, C82
PEAK
RECT
R318, C80
AVERAGE
RECT
RV7
IRIS
MODE
IC9
AMP
RV28
IRIS
SET
RV36
IRIS
GATE
TP4
Q88
V SAW
GEN
IRIS VID
16
AT. 2-13
SAMPLE PULSE
12
AT. 1-14
8
MIX OFF
SG. 30
30
CLAMP PLS
Q89
INV
SG. 33
44
SAMPLE PLS
IE. 20
19
DTL VIDEO
RV37
DTL
GAIN
Q86
BUFF
DL1
DELAY
Q118
BUFF
APERTURE
11
PR-182
2-1
KNEE CONT
3-4
3-3
3-2
Q1, 2
NUM
Q3
AMP
Q4
CLAMP
2-5
V CLAMP
IC1
2-12
SAMPLE PULSE
2-8
WHITE ENABLE
2-3
DCC ON
2-11
APERTURE
1
2
3
4
5
A
B
C
D
E
F
G
H


CLAMP
R-γ
G-γ
B-γ
GAIN CONT AMP
IC2
IC5
IC8
RV3 R γ BAL
RV4 R GAMMA
RV5 R GAIN2
RV10 G γ BAL
RV11 G GAMMA
RV12 G GAIN2
RV16 B γ BAL
RV17 B GAMMA
RV18 B GAIN2
AMP
BUFF
WHT CLIP
BLACK CLIP
RV7 R SLOPE
RV13 G SLOPE
RV20 B SLOPE
R KNEE
G KNEE
B KNEE
R (EN)
R (CCU)
G (EN)
G (CCU)
B (EN)
B (CCU)
KNEE CONT
V CLAMP
CCC ON
BLK REF ON
WHT CLIP OFF
WHITE ENABLE
BLANKING
IRIS VID
SAMPLE PULSE
APERTURE
S2 ON/OFF
+7V
-2.5V
S3 WHT CLIP
RV33 WHT CLIP B
RV34 WHT CLIP G
RV35 WHT CLIP R
PEAK RECT
AVERAGE RECT
RV7 IRIS MODE
RV28 IRIS SET
RV37 DTL GAIN
DELAY
EN. 42
MB. 110-4
AT. 1-15
EN. 41
MB. 110-1
IE. 32
EN. 40
MB. 111-21
AT. 1-13
AT. 1-12
AT. 1-22
SG. 29
AT. 2-13
PR-182
NAM
CLAMP
PEAK HOLD
TP1
TP2
IC3
IC4 (1/2)
DC AMP
LIMIT
RV40 AUTO GAIN
RV41 AUTO START
RV42 AUTO LIMIT
IC4 (2/2)
MANUAL KNEE SET
RV43 MANU POINT
IC5
IC7 (1/2)
IC8 (1/2)
IC8 (2/2)
KNEE CORR
RV44 R.KNEE POINT
RV45 B.KNEE POINT
IC6

PR-179U/179 BLOCK
PR-182 BLOCK
BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)

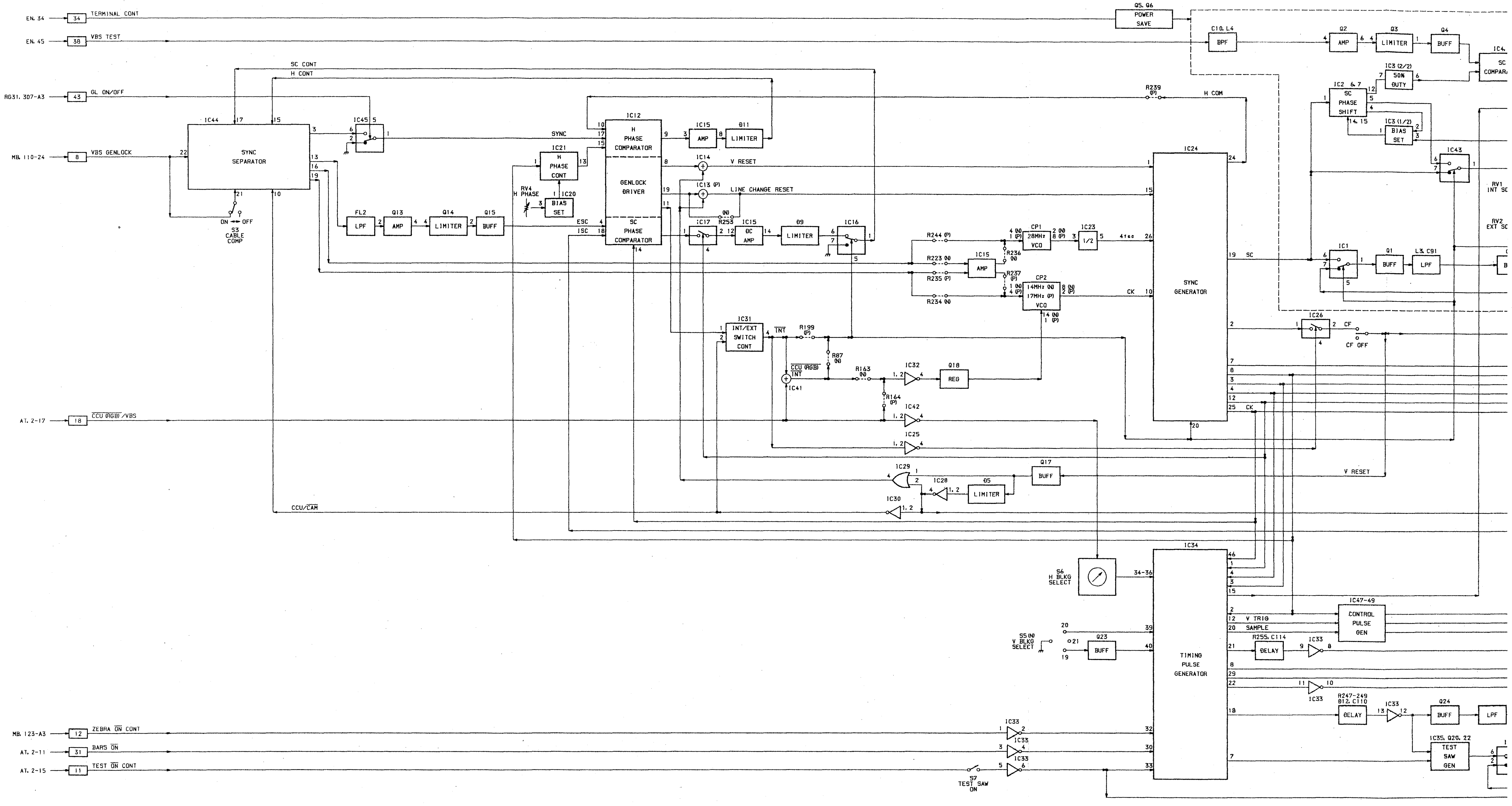
IE-39/39P BLOCK

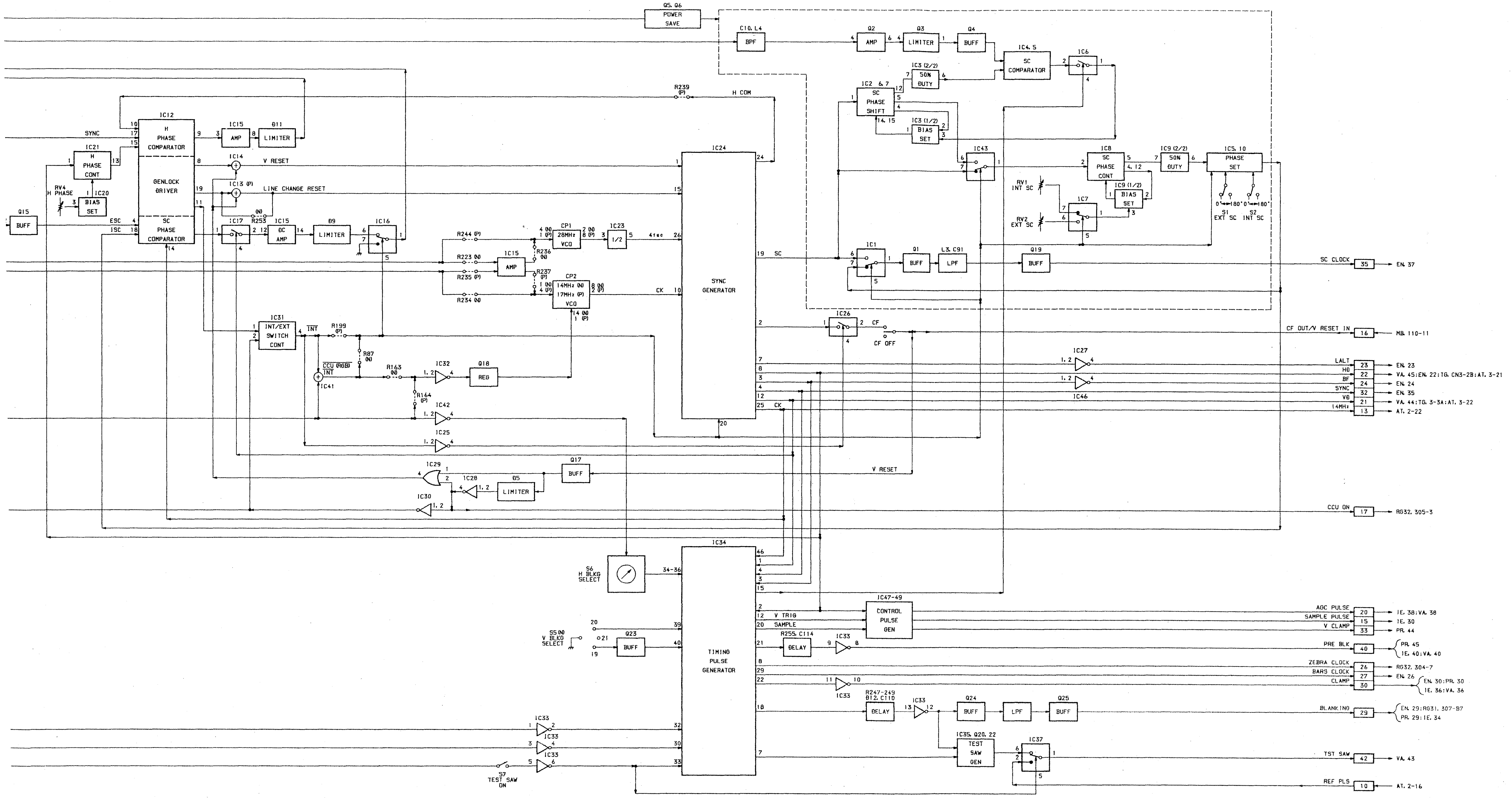

TG. 3-4A
42
36MHz
Q1
BUFF
8, 10
IC1
MOD
12
6
DL1 (1/2)
1H
DELAY
3
1
2
Q12, 13, L6, C18
DEMOD
CV2
1H FREQ
1H PHASE
Q14
ACT
DELAY
RV1
1H PHASE
Q15, 16, 22
BUFF
VA. 15
SG. 20
15
38
G
AGC PULSE
Q39, 40, 102
BUFF
Q103
CLAMP
Q58, 104
BUFF
0H
DL1 (2/2)
2H
DELAY
13
11
12
Q34, 35, L7, C36, 58
DEMOD
CV3
2H
FREQ
Q36, 110
BUFF
1H
2H
Q59
CLAMP
TP1
0H
Q64
SAMPLE &
HOLD
IC3 (2/2)
5
6
7
TP3
2H
Q63
CLAMP
Q65
SAMPLE &
HOLD
Q61
SAMPLE &
HOLD
IC3 (1/2)
3
2
1
TP2
1H
Q60
CLAMP
Q62
SAMPLE &
HOLD
RV6
1H LEVEL
SG. 15
30
SAMPLE PULSE
IC2
2
INV
4
R156, 354, 355
2H
1H
0H
COMS
FILTER
RV8
DTL
ALIAS
R157
R158
Q69, 70
AMP
DL5
DELAY
FL1
LPF
CV4
H DTL
RATIO
Q71
BUFF
RV9
H DTL
NULL
Q72, 73
AMP
TP4
H DTL
VA. 13
13
R
Q47, 123
BUFF
VA. 17
17
B
Q41, 122
BUFF
DL2
2
180ns
DELAY
6
RV2
G GAIN
Q19, 20, 100, 108, 109, 114, IC7
Gch MIX AMP
CLAMP
DTL MIX
APT MIX
B
1H
R
RV16
APT ALIAS
Q115, 86
BUFF
DL6 (1/4)
DELAY
Q87
BUFF
DL6 (2/4)
DELAY
Q88
BUFF
RV17
APT NULL
Q89, 91
MIX
AMP
DL7
1
DELAY
6
RV18
APT LEVEL
Q92, 93
AMP
S2
APT
ON/OFF
IC6
1
4
Q94
BUFF
Q1
BU
RV21
APT OUT
LEVEL
Q48
BUFF
DL4
2
180ns
DELAY
6
RV5
R GAIN
Q49~52, 95, 121, IC7
Rch MIX AMP
CLAMP
DTL MIX
APT MIX
Q42
BUFF
DL3
2
180ns
DELAY
6
RV4
B GAIN
Q43~46, 107, 112, IC7
Bch MIX AMP
CLAMP
DTL MIX
APT MIX
2H
1H
R174
R175
R176
0H
RV10
V DTL
NULL
Q74, 53
AMP
L10, C92
LPF
Q75
BUFF
TP5
V DTL
V DTL BLACK
CLIP
RV11
BLACK CLIP
RV12
H/V RATIO
Q77
BUFF
Q68, 78, 79
80, 81, 133
GAIN CONT
AMP
RV13
BLACK
BALANCE
Q82, 83
CRISPENDING
RV14
CRISPENDING
RV15
DTL
LEVEL
Q97
DC
BIAS
IC5
2, 3
4
GAIN CONT
AMP
6
8
Q98, 105
CLIP
RV20
DTL CLIP
Q106
BUFF
TP7
Q85
INV
Q84
INV
VA. 11
VA. 10
11
10
MID GAIN CONT
HIGH GAIN CONT
SG. 30
36
CLAMP
Q38, 113
BUFF
Q66
CLAMP
1H
Q67
LEVEL
DEPEND
RV7
LEVEL DEP1
RV22
LEVEL DEP2
AT. 1-8
29
AWB/ABB
ENABLE
S1
DTL
ON/OFF
ON
OFF
+5V
D18, 19
S3
+8.8V
R266
(P)
R267
(N)
IE-
BVP-
BVP-
BVP-
B-BVP90-IE3


36MHz
Q1
BUFF
8, 10
IC1
MOD
12
6
DL1 (1/2)
1H DELAY
Q12, 13, L6, C18
DEMOD
CV2
1H FREQ
1H PHASE
Q14
ACT DELAY
RV1
1H PHASE
Q15, 16, 22
BUFF
DL2
180ns DELAY
RV2
G GAIN
Q19, 20, 100, 108, 109, 114, IC7
Gch MIX AMP
CLAMP
DTL MIX
APT MIX
G
24
PR. 23
AGC PULSE
Q39, 40, 102
BUFF
Q103
CLAMP
Q58, 104
BUFF
0H
DL1 (2/2)
2H DELAY
13
11
12
Q34, 35, L7, C36, 58
DEMOD
CV3
2H FREQ
Q36, 110
BUFF
1H
2H
TP1
0H
Q59
CLAMP
Q64
SAMPLE & HOLD
IC3 (2/2)
TP3
2H
Q63
CLAMP
Q65
SAMPLE & HOLD
Q61
SAMPLE & HOLD
IC3 (1/2)
TP2
1H
Q60
CLAMP
Q62
SAMPLE & HOLD
RV6
1H LEVEL
SAMPLE PULSE
IC2
INV
R156, 354, 355
COMB FILTER
RV8
DTL ALIAS
R157
R158
Q69, 70
AMP
DL5
DELAY
Q71
BUFF
FL1
LPF
CV4
H DTL RATIO
RV9
H DTL NULL
Q72, 73
AMP
TP4
H DTL
B
1H
R
RV16
APT ALIAS
Q115, 86
BUFF
DL6 (1/4)
DELAY
Q87
BUFF
DL6 (2/4)
DELAY
Q88
BUFF
RV17
APT NULL
Q89, 91
MIX AMP
DL7
DELAY
RV18
APT LEVEL
Q92, 93
AMP
S2
APT ON/OFF
IC6
Q94
BUFF
Q116
BUFF
RV21
APT OUT LEVEL
Q117
BUFF
20
PR. 19
Q47, 123
BUFF
Q41, 122
BUFF
Q48
BUFF
DL4
180ns DELAY
RV5
R GAIN
Q49~52, 95, 121, IC7
Rch MIX AMP
CLAMP
DTL MIX
APT MIX
R
22
PR. 21
Q42
BUFF
DL3
180ns DELAY
RV4
B GAIN
Q43~46, 107, 112, IC7
Bch MIX AMP
CLAMP
DTL MIX
APT MIX
B
26
PR. 25
2H
1H
0H
R174
R175
R176
RV10
V DTL NULL
Q74, 53
AMP
L10, C92
LPF
Q75
BUFF
V DTL BLACK CLIP
RV11
BLACK CLIP
TP5
V DTL
RV12
H/V RATIO
Q77
BUFF
Q68, 78, 79
80, 81, 133
GAIN CONT AMP
RV13
BLACK BALANCE
Q82, 83
CRISPENDING
RV14
CRISPENDING
RV15
DTL LEVEL
Q97
DC BIAS
IC5
2, 3
GAIN CONT AMP
Q98, 105
CLIP
RV20
DTL CLIP
Q106
BUFF
TP7
Q85
INV
Q84
INV
ID GAIN CONT
IGH GAIN CONT
CLAMP
Q38, 113
BUFF
Q66
CLAMP
Q67
LEVEL DEPEND
RV7
LEVEL DEP1
RV22
LEVEL DEP2
WB/ABB
ENABLE
S1
DTL ON/OFF
ON
OFF
+5V
D18, 19
S3
FLM
FLD
FILD/FLM CONT
8
AT. 1-11
+8.8V
R266 (P)
R267 (N)
CCIR/EIA
9
AT. 1-10:MB. 123-B6
DTL CONT
28
AT. 1-9
PRE BLK
PRE BLK
40
39
SG. 40
1
2
3
4
5
E
F
G
H
I
J
K
L
B-#BVP90-IE39BLOCK/H

IE-39/39P BLOCK
BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)

SG-206/206P BLOCK

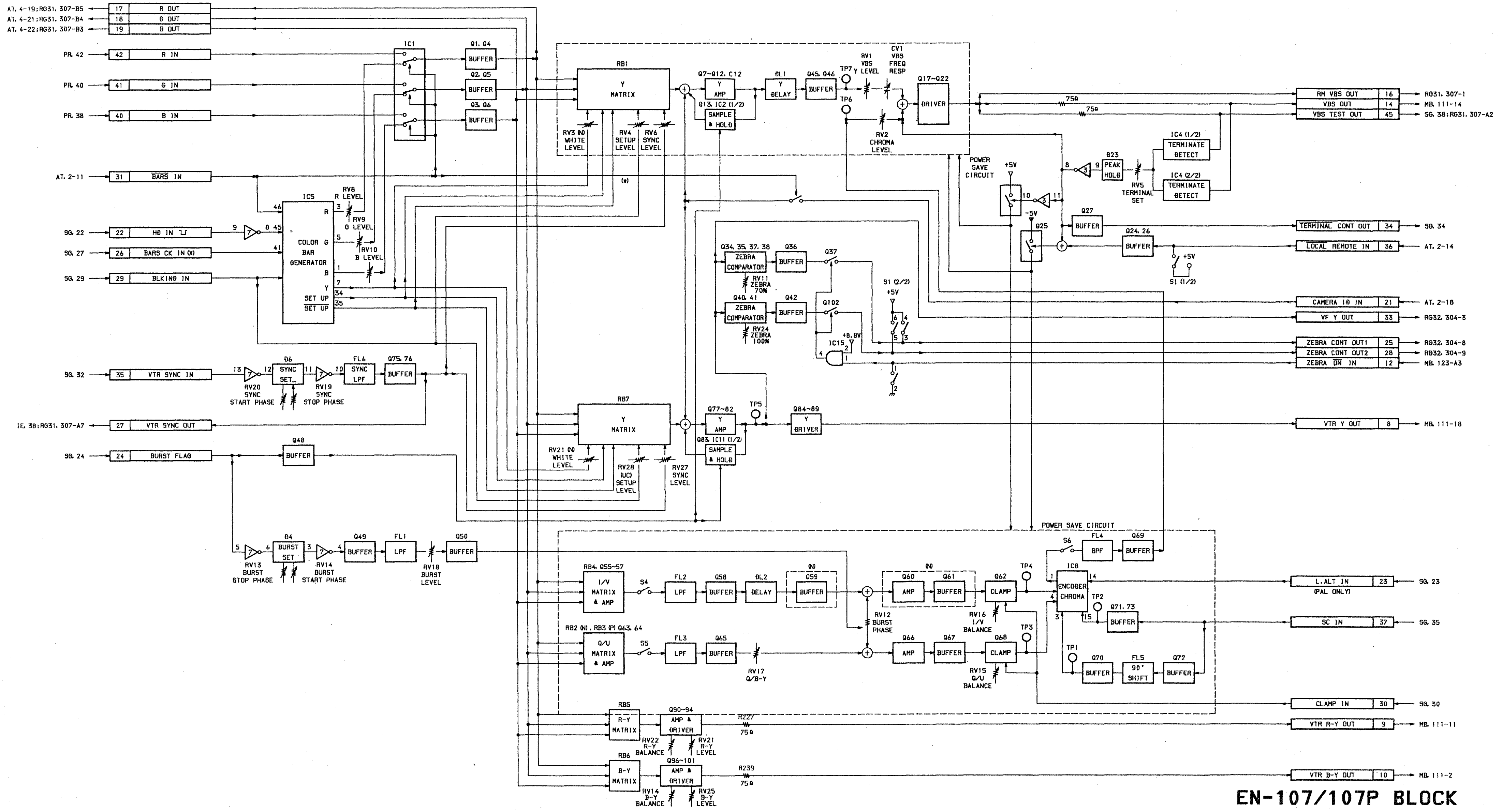

1
2
3
4
5
EN. 34
34
TERMINAL CONT
EN. 45
38
VBS TEST
RG31. 307-A3
43
GL ON/OFF
MB. 110-24
8
VBS GENLOCK
AT. 2-17
18
CCU (RGB)/VBS
MB. 123-A3
12
ZEBRA ON CONT
AT. 2-11
31
BARS ON
AT. 2-15
11
TEST ON CONT
SC CONT
H CONT
IC44
SYNC SEPARATOR
S3 CABLE COMP
ON OFF
IC45
SYNC
CCU/CAM
FL2 LPF
Q13 AMP
Q14 LIMITER
Q15 BUFF
IC21 H PHASE CONT
RV4 H PHASE
IC20 BIAS SET
ESC
ISC
IC12
H PHASE COMPARATOR
GENLOCK DRIVER
SC PHASE COMPARATOR
IC15 AMP
Q11 LIMITER
IC14
V RESET
IC13 (P)
LINE CHANGE RESET
IC17
R253 (N)
IC15 DC AMP
Q9 LIMITER
IC16
R244 (P)
R223 (N)
R235 (P)
R234 (N)
IC15 AMP
R236 (N)
R237 (P)
CP1 28MHz VCO
CP2 14MHz (N) 17MHz (P) VCO
IC23 1/2
4fsc
CK
IC31 INT/EXT SWITCH CONT
INT
R199 (P)
R87 (N)
CCU (RGB)/INT
IC41
R163 (N)
IC32
Q18 REG
R164 (P)
IC42
IC25
IC29
IC28
Q5 LIMITER
Q17 BUFF
IC30
V RESET
Q5, Q6 POWER SAVE
R239 (P)
H COM
IC24
SYNC GENERATOR
19 SC
C10, L4 BPF
Q2 AMP
Q3 LIMITER
Q4 BUFF
IC4, SC COMPAR
IC3 (2/2) 50% DUTY
IC2 6, 7 SC PHASE SHIFT
IC3 (1/2) BIAS SET
IC43
RV1 INT SC
RV2 EXT SC
IC1
Q1 BUFF
L3, C91 LPF
IC26
CF
CF OFF
S6 H BLKG SELECT
34-36
IC34
TIMING PULSE GENERATOR
S5 (N) V BLKG SELECT
Q23 BUFF
V TRIG
SAMPLE
IC47-49 CONTROL PULSE GEN
R255, C114 DELAY
IC33
R247-249 Q12, C110 DELAY
Q24 BUFF
LPF
IC35, Q20, 22 TEST SAW GEN
S7 TEST SAW ON
A
B
C
D
E
F
G
H


Q5, Q6
POWER SAVE
C10, L4
BPF
Q2
AMP
Q3
LIMITER
Q4
BUFF
IC4, 5
SC COMPARATOR
IC6
IC3 (2/2)
50% DUTY
IC2 6, 7
SC PHASE SHIFT
14, 15
IC3 (1/2)
BIAS SET
IC43
IC8
SC PHASE CONT
4, 12
IC9 (2/2)
50% DUTY
IC5, 10
PHASE SET
IC9 (1/2)
BIAS SET
RV1
INT SC
RV2
EXT SC
IC7
0°↔180° 0°↔180°
S1
EXT SC
S2
INT SC
IC1
Q1
BUFF
L3, C91
LPF
Q19
BUFF
SC CLOCK
35
EN. 37
R239
(P)
H COM
IC12
H PHASE COMPARATOR
GENLOCK DRIVER
SC PHASE COMPARATOR
SYNC
IC21
H PHASE CONT
RV4
H PHASE
IC20
BIAS SET
Q15
BUFF
ESC
ISC
IC15
AMP
Q11
LIMITER
IC14
V RESET
IC13 (P)
LINE CHANGE RESET
(N)
IC17
R253
IC15
DC AMP
D9
LIMITER
IC16
R244 (P)
R223 (N)
R235 (P)
R234 (N)
IC15
AMP
R236
(N)
R237
(P)
CP1
28MHz
VCO
4 (N)
1 (P)
2 (N)
8 (P)
IC23
1/2
4fsc
CP2
14MHz (N)
17MHz (P)
VCO
1 (N)
4 (P)
8 (N)
2 (P)
14 (N)
1 (P)
CK
IC24
SYNC GENERATOR
19 SC
IC31
INT/EXT SWITCH CONT
INT
R199
(P)
R87
(N)
CCU (RGB)
INT
IC41
R163
(N)
IC32
Q18
REG
R164
(P)
IC42
IC25
IC29
IC28
D5
LIMITER
Q17
BUFF
IC30
V RESET
IC26
CF
CF OFF
CF OUT/V RESET IN
16
MB. 110-11
IC27
IC46
LALT
HD
BF
SYNC
VD
14MHz
23
22
24
32
21
13
EN. 23
VA. 45:EN. 22:TG. CN3-2B:AT. 3-21
EN. 24
EN. 35
VA. 44:TG. 3-3A:AT. 3-22
AT. 2-22
CCU ON
17
RG32. 305-3
IC34
S6
H BLKG
SELECT
34-36
TIMING PULSE GENERATOR
S5 (N)
V BLKG
SELECT
Q23
BUFF
IC47-49
CONTROL PULSE GEN
V TRIG
SAMPLE
AGC PULSE
SAMPLE PULSE
V CLAMP
20
15
33
IE. 38:VA. 38
IE. 30
PR. 44
R255, C114
DELAY
IC33
PRE BLK
40
PR. 45
IE. 40:VA. 40
ZEBRA CLOCK
BARS CLOCK
CLAMP
26
27
30
RG32. 304-7
EN. 26
EN. 30:PR. 30
IE. 36:VA. 36
R247-249
D12, C110
DELAY
Q24
BUFF
LPF
Q25
BUFF
BLANKING
29
EN. 29:RG31. 307-B7
PR. 29:IE. 34
IC35, Q20, 22
TEST SAW GEN
IC37
TST SAW
42
VA. 43
REF PLS
10
AT. 2-16
S7
TEST SAW
ON

SG-206/206P BOARD

BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)
B-¥BVP90-SG206BLOCK/M

EN-107/107P BLOCK


AT. 4-19;RG31. 307-B5
AT. 4-21;RG31. 307-B4
AT. 4-22;RG31. 307-B3
17 R OUT
18 G OUT
19 B OUT
PR. 42
42 R IN
PR. 40
41 G IN
PR. 38
40 B IN
AT. 2-11
31 BARS IN
SG. 22
22 HD IN
SG. 27
26 BARS CK IN (X)
SG. 29
29 BLKING IN
SG. 32
35 VTR SYNC IN
IE. 38;RG31. 307-A7
27 VTR SYNC OUT
SG. 24
24 BURST FLAG
IC1
Q1. Q4 BUFFER
Q2. Q5 BUFFER
Q3. Q6 BUFFER
IC5 COLOR BAR GENERATOR
R G B Y SET UP SET UP
RV8 R LEVEL
RV9 G LEVEL
RV10 B LEVEL
D6 SYNC SET
RV20 SYNC START PHASE
RV19 SYNC STOP PHASE
FL6 SYNC LPF
Q75. 76 BUFFER
Q48 BUFFER
D4 BURST SET
RV13 BURST STOP PHASE
RV14 BURST START PHASE
Q49 BUFFER
FL1 LPF
RV18 BURST LEVEL
Q50 BUFFER
RB1 Y MATRIX
RV3 (N) WHITE LEVEL
RV4 SETUP LEVEL
RV6 SYNC LEVEL
(*)
Q7~Q12. C12 Y AMP
Q13. IC2 (1/2) SAMPLE & HOLD
DL1 Y DELAY
Q45. Q46 BUFFER
TP7
TP6
RV1 VBS Y LEVEL
CV1 VBS FREQ RESP
RV2 CHROMA LEVEL
Q17~Q22 DRIVER
75Ω
75Ω
POWER SAVE CIRCUIT
+5V
-5V
Q25
D23 PEAK HOLD
RV5 TERMINAL SET
IC4 (1/2) TERMINATE DETECT
IC4 (2/2) TERMINATE DETECT
Q27 BUFFER
Q24. 26 BUFFER
S1 (1/2)
S1 (2/2)
Q34. 35. 37. 38 ZEBRA COMPARATOR
RV11 ZEBRA 70%
Q36 BUFFER
Q37
Q40. 41 ZEBRA COMPARATOR
RV24 ZEBRA 100%
Q42 BUFFER
Q102
IC15
+8.8V
RB7 Y MATRIX
RV21 (N) WHITE LEVEL
RV28 (UC) SETUP LEVEL
RV27 SYNC LEVEL
Q77~82 Y AMP
Q83. IC11 (1/2) SAMPLE & HOLD
TP5
Q84~89 Y DRIVER
RM VBS OUT 16 RG31. 307-1
VBS OUT 14 MB. 111-14
VBS TEST OUT 45 SG. 38;RG31. 307-A2
TERMINAL CONT OUT 34 SG. 34
LOCAL REMOTE IN 36 AT. 2-14
CAMERA ID IN 21 AT. 2-18
VF Y OUT 33 RG32. 304-3
ZEBRA CONT OUT1 25 RG32. 304-8
ZEBRA CONT OUT2 28 RG32. 304-9
ZEBRA ON IN 12 MB. 123-A3
VTR Y OUT 8 MB. 111-18
POWER SAVE CIRCUIT
RB4. Q55~57 I/V MATRIX & AMP
S4
FL2 LPF
Q58 BUFFER
DL2 DELAY
(N) Q59 BUFFER
RB2 (N). RB3 (P) Q63. 64 Q/U MATRIX & AMP
S5
FL3 LPF
Q65 BUFFER
RV17 Q/B-Y
RV12 BURST PHASE
(N)
Q60 AMP
Q61 BUFFER
Q62 CLAMP
RV16 I/V BALANCE
Q66 AMP
Q67 BUFFER
Q68 CLAMP
RV15 Q/U BALANCE
TP4
TP3
S6
FL4 BPF
Q69 BUFFER
IC8 ENCODER CHROMA
TP2
Q71. 73 BUFFER
TP1
Q70 BUFFER
FL5 90° SHIFT
Q72 BUFFER
L.ALT IN 23 SG. 23
(PAL ONLY)
SC IN 37 SG. 35
CLAMP IN 30 SG. 30
RB5 R-Y MATRIX
Q90~94 AMP & DRIVER
RV22 R-Y BALANCE
RV21 R-Y LEVEL
R227 75Ω
VTR R-Y OUT 9 MB. 111-11
RB6 B-Y MATRIX
Q96~101 AMP & DRIVER
RV14 B-Y BALANCE
RV25 B-Y LEVEL
R239 75Ω
VTR B-Y OUT 10 MB. 111-2

EN-107/107P BLOCK

BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)

B-YBVP90-EN107BLOCK/M

AT-77 BLOCK

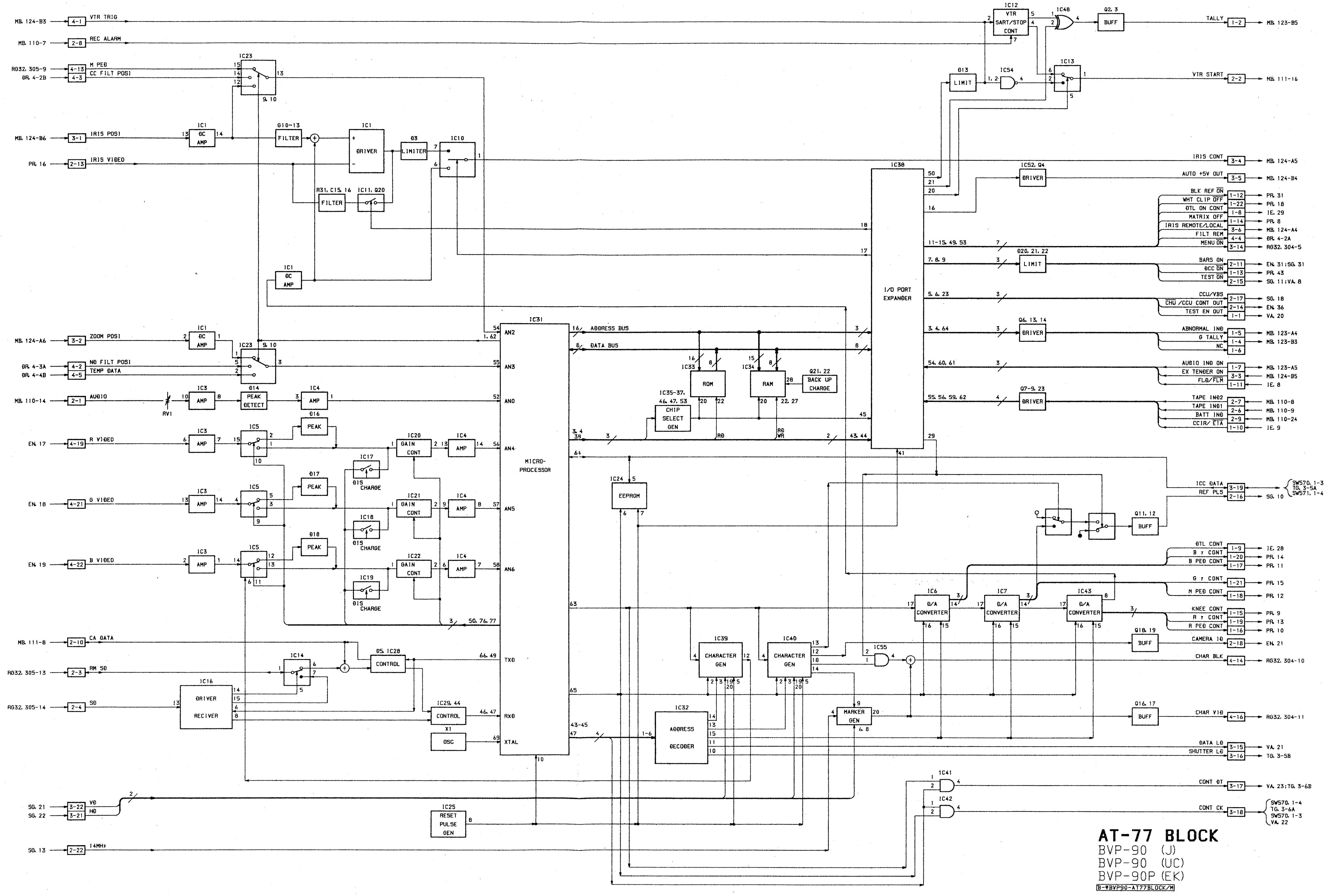
1

2

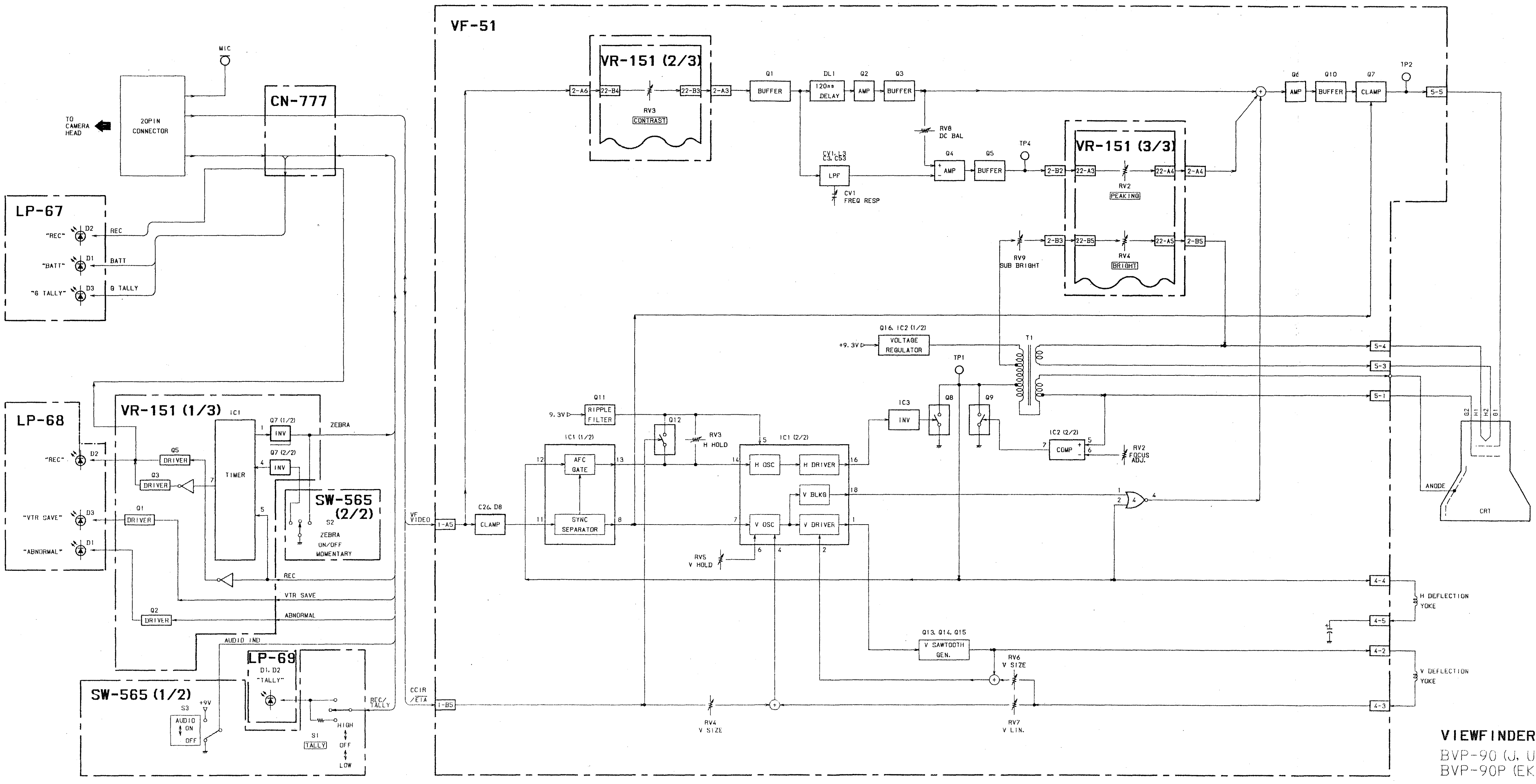
3

4

5


MB. 124-B3
4-1
VTR TRIG
MB. 110-7
2-8
REC ALARM
RG32. 305-9
BR. 4-2B
4-13
4-3
M PED
CC FILT POSI
IC23
MB. 124-B6
3-1
IRIS POSI
IC1
DC AMP
Q10-13
FILTER
IC1
DRIVER
Q3
LIMITER
IC10
PR. 16
2-13
IRIS VIDEO
R31, C15, 16
FILTER
IC11, Q20
IC1
DC AMP
MB. 124-A6
3-2
ZOOM POSI
IC1
DC AMP
IC23
BR. 4-3A
BR. 4-4B
4-2
4-5
ND FILT POSI
TEMP DATA
MB. 110-14
2-1
AUDIO
RV1
IC3
AMP
Q14
PEAK DETECT
IC4
AMP
EN. 17
4-19
R VIDEO
IC3
AMP
IC5
Q16
PEAK
IC20
GAIN CONT
IC4
AMP
IC17
Q15
CHARGE
EN. 18
4-21
G VIDEO
IC3
AMP
IC5
Q17
PEAK
IC21
GAIN CONT
IC4
AMP
IC18
Q15
CHARGE
EN. 19
4-22
B VIDEO
IC3
AMP
IC5
Q18
PEAK
IC22
GAIN CONT
IC4
AMP
IC19
Q15
CHARGE
MB. 111-8
2-10
CA DATA
RG32. 305-13
2-3
RM SD
IC14
Q5, IC28
CONTROL
RG32. 305-14
2-4
SD
IC16
DRIVER
RECIVER
IC29, 44
CONTROL
X1
OSC
SG. 21
SG. 22
3-22
3-21
VD
HD
SG. 13
2-22
14MHz
IC25
RESET PULSE GEN
IC31
AN2
AN3
AN0
AN4
AN5
AN6
TXD
RXD
XTAL
MICRO-PROCESSOR
ADDRESS BUS
DATA BUS
IC33
ROM
IC34
RAM
Q21, 22
BACK UP CHARGE
IC35-37, 46, 47, 53
CHIP SELECT GEN
RD
WR
IC24
EEPROM
IC39
CHARACTER GEN
IC40
CHARACTER GEN
IC32
ADDRESS DECODER
IC55
MARKER GEN
IC38
I/O PORT EXPANDER
IC12
VTR SART/STOP CONT
IC48
Q2, 3
BUFF
TALLY
1-2
MB. 123-B5
Q13
LIMIT
IC54
IC13
VTR START
2-2
MB. 111-16
IRIS CONT
3-4
MB. 124-A5
IC52, Q4
DRIVER
AUTO +5V OUT
3-5
MB. 124-B4
BLK REF ON
1-12
PR. 31
WHT CLIP OFF
1-22
PR. 18
DTL ON CONT
1-8
IE. 29
MATRIX OFF
1-14
PR. 8
IRIS REMOTE/LOCAL
3-6
MB. 124-A4
FILT REM
4-4
DR. 4-2A
MENU ON
3-14
RG32. 304-5
Q20, 21, 22
LIMIT
BARS ON
2-11
EN. 31:SG. 31
DCC ON
1-13
PR. 43
TEST ON
2-15
SG. 11:VA. 8
CCU/VBS
2-17
SG. 18
CHU /CCU CONT OUT
2-14
EN. 36
TEST EN OUT
1-1
VA. 20
Q6, 13, 14
DRIVER
ABNORMAL IND
1-5
MB. 123-A4
G TALLY
1-4
MB. 123-B3
NC
1-6
AUDIO IND ON
1-7
MB. 123-A5
EX TENDER ON
3-3
MB. 124-B5
FLD/FLM
1-11
IE. 8
Q7-9, 23
DRIVER
TAPE IND2
2-7
MB. 110-8
TAPE IND1
2-6
MB. 110-9
BATT IND
2-9
MB. 110-24
CCIR/ EIA
1-10
IE. 9
ICC DATA
3-19
SW570, 1-3
TG. 3-5A
SW571, 1-4
REF PLS
2-16
SG. 10
Q11, 12
BUFF
DTL CONT
1-9
IE. 28
B γ CONT
1-20
PR. 14
B PED CONT
1-17
PR. 11
G γ CONT
1-21
PR. 15
M PED CONT
1-18
PR. 12
IC6
D/A CONVERTER
IC7
D/A CONVERTER
IC43
D/A CONVERTER
KNEE CONT
1-15
PR. 9
R γ CONT
1-19
PR. 13
R PED CONT
1-16
PR. 10
Q18, 19
BUFF
CAMERA ID
2-18
EN. 21
CHAR BLK
4-14
RG32. 304-10
Q16, 17
BUFF
CHAR VID
4-16
RG32. 304-11
DATA LD
3-15
VA. 21
SHUTTER LD
3-16
TG. 3-5B
IC41
CONT DT
3-17
VA. 23:TG. 3-6B
IC42
CONT CK
3-18
SW570, 1-4
TG. 3-6A
SW570, 1-3
VA. 22
AT-77 BLOCK
BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)
B-¥BVP90-AT77BLOCK/M

VF BLOCK


MIC
TO CAMERA HEAD
20PIN CONNECTOR
CN-777
LP-67
"REC"
D2
REC
"BATT"
D1
BATT
"G TALLY"
D3
G TALLY
LP-68
"REC"
D2
"VTR SAVE"
D3
"ABNORMAL"
D1
VR-151 (1/3)
IC1
TIMER
Q7 (1/2)
INV
Q7 (2/2)
INV
ZEBRA
Q5
DRIVER
Q3
DRIVER
Q1
DRIVER
Q2
DRIVER
1
4
7
5
SW-565 (2/2)
S2
ZEBRA
ON/OFF
MOMENTARY
REC
VTR SAVE
ABNORMAL
AUDIO IND
LP-69
D1, D2
"TALLY"
SW-565 (1/2)
+9V
S3
AUDIO
ON
OFF
S1
TALLY
HIGH
OFF
LOW
REC/TALLY
VF VIDEO
CCIR /EIA
VF-51
VR-151 (2/3)
2-A6
22-B4
22-B3
2-A3
RV3
CONTRAST
Q1
BUFFER
DL1
120ns DELAY
Q2
AMP
Q3
BUFFER
RV8
DC BAL
CV1, L3
C3, C53
LPF
CV1
FREQ RESP
Q4
AMP
Q5
BUFFER
TP4
VR-151 (3/3)
2-B2
22-A3
22-A4
2-A4
RV2
PEAKING
RV9
SUB BRIGHT
2-B3
22-B5
22-A5
2-B5
RV4
BRIGHT
Q6
AMP
Q10
BUFFER
Q7
CLAMP
TP2
5-5
Q16, IC2 (1/2)
+9.3V
VOLTAGE REGULATOR
T1
TP1
5-4
5-3
5-1
Q11
9.3V
RIPPLE FILTER
Q12
RV3
H HOLD
IC1 (1/2)
AFC GATE
SYNC SEPARATOR
12
13
11
8
IC1 (2/2)
5
14
H OSC
H DRIVER
16
V BLKG
18
7
V OSC
V DRIVER
1
6
4
2
IC3
INV
Q8
Q9
IC2 (2/2)
COMP
7
5
6
RV2
FOCUS ADJ.
1
2
4
4
G2
H1
H2
G1
ANODE
CRT
1-A5
C26, D8
CLAMP
RV5
V HOLD
4-4
H DEFLECTION YOKE
4-5
Q13, Q14, Q15
V SAWTOOTH GEN.
4-2
RV6
V SIZE
V DEFLECTION YOKE
1-B5
RV4
V SIZE
RV7
V LIN.
4-3

VIEWFINDER BLOCK
BVP-90 (J, UC)
BVP-90P (EK)

B-BVP90-VFBLOCK/M

SECTION B
SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

TYPE **PAGE**

1S2835 .... B-2
1S2836 .... B-2
1S2837 .... B-2

1SS123 .... B-2

2SA1226 .... B-2
2SA812 .... B-2

2SB624 .... B-2

2SC1621 .... B-2
2SC1623-L6 .... B-2
2SC2223 .... B-2
2SC2757 .... B-2
2SC3360 .... B-2
2SC3661 .... B-2

2SK300 .... B-2
2SK508 .... B-2
2SK612 .... B-2
2SK620 .... B-2
2SK853 .... B-2
2SK94 .... B-2

3SK163 .... B-2

AD847JR B-3

AT27C512R-15RC B-3

BA225F B-3

CL-150D-CD B-2
CL-150PG-CD B-2
CL-150UR-CD B-2

CX22017 .... B-3
CX518 .... B-4
CX7968A B-4
CX7969 .... B-5

CXD1095Q B-7
CXD1216M B-8
CXD1217M B-8
CXD1262J B-10
CXD8154BM B-10

DTA144EK B-2

DTC114EK B-2
DTC144EK B-2

GL-5LR40 .... B-2

TYPE **PAGE**

HA11423MP B-10

HD6475328F10 .... B-11

HSM107S B-2
HSM88AS B-2

HZS ?BL B-2
HZS ?CL B-2

LM35DM B-12
LM6365 .... B-12

M6M80011AFP B-12

MAX454CSD B-12

MB88351PFV B-13

MC14046BF B-13
MC1496M B-13

MC74HC4052F B-14
MC74HC4053F B-14

MP7523JS B-14

MS62256CLL-10FC B-14

NJM1496M B-13

PCF8574T B-15

RD ? ?M B-2

SN74HC04ANS B-15
SN74HC138APW B-15
SN74HC164ANS B-15
SN74HC574APW B-15
SN74HC74ANS B-16
SN74HC86ANS B-16
SN74LS123NS B-16

TC4069UBF B-16

TC4S01F B-16
TC4S30F B-16
TC4S584F B-16
TC4S66F B-17
TC4S69F B-17
TC4S71F B-17
TC4S81F B-17
TC4SU69F B-17
TC4W53F B-17

TYPE **PAGE**

TC74AC00F B-17
TC74AC04F B-15

TC74AC86F B-16

TC74HC595AF B-17

TC7S00F B-18
TC7S02F B-18
TC7S04F B-18
TC7S08F B-18
TC7S32F B-18

TC7W00F B-18
TC7W04F B-18
TC7W08F B-18

TL032CPS B-18
TL062CPS B-18
TL064CDB B-19
TL064CPW B-19

TL7700CPS B-19

TLC27L2CPS B-19
TLC27L4CDB B-19
TLC27L4CPW B-19
TLC27M4CPW B-19

TSC426COA B-19

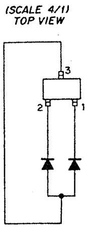
UPC358G2 .... B-19
UPC393G2 .... B-19
UPC814G2-1 .... B-19

UPD4711AGS B-20
UPD6254GS-BA1 .... B-20
UPD6453GT B-21

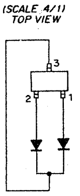
V09C B-2
V11 ? B-2

XN6401 .... B-2
XN6435 .... B-2
XN6501 .... B-2
XN6534 .... B-2

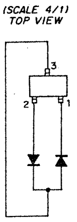
DIODE,TRANSISTOR


(SCALE 4/1)
TOP VIEW
3
2
1

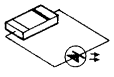
1S2835
1S2836


(SCALE 4/1)
TOP VIEW
3
2
1

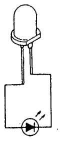
1S2837


(SCALE 4/1)
TOP VIEW
3
2
1

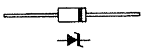
1SS123
HSM107S
HSM88AS



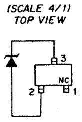
CL-150D-CD ; ORANGE
CL-150PG-CD ; GREEN
CL-150UR-CD ; RED



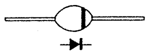
GL-5LR40 ; RED



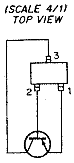
HZS ?BL
HZS ?CL


(SCALE 4/1)
TOP VIEW
3
NC
2
1

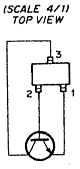
RD ? ?M



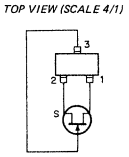
V09C
V11 ?


(SCALE 4/1)
TOP VIEW
3
2
1

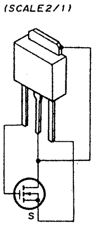
2SA1226
2SA812
2SB624


(SCALE 4/1)
TOP VIEW
3
2
1

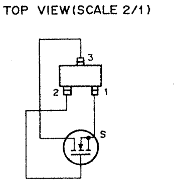
2SC1621
2SC1623-L6
2SC2223
2SC2757
2SC3360
2SC3661


TOP VIEW (SCALE 4/1)
3
2
1
S

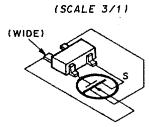
2SK300
2SK508
2SK853
2SK94



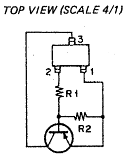
2SK612


TOP VIEW (SCALE 2/1)
3
2
1
S

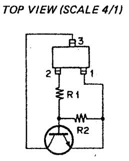
2SK620


(SCALE 3/1)
(WIDE)
S

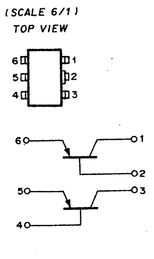
3SK163


TOP VIEW (SCALE 4/1)
3
2
1
R1
R2

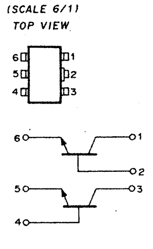
DTA144EK
(R1 = 47K,
R2 = 47K)


TOP VIEW (SCALE 4/1)
3
2
1
R1
R2

DTC114EK
(R1 = 10K, R2 = 10K)
DTC144EK
(R1 = 47K, R2 = 47K)

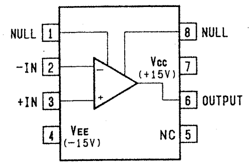

(SCALE 6/1)
TOP VIEW
6
5
4
1
2
3

XN6401
XN6435

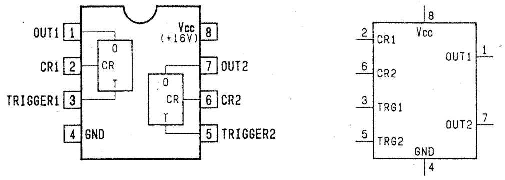

(SCALE 6/1)
TOP VIEW
6
5
4
1
2
3

XN6501
XN6534

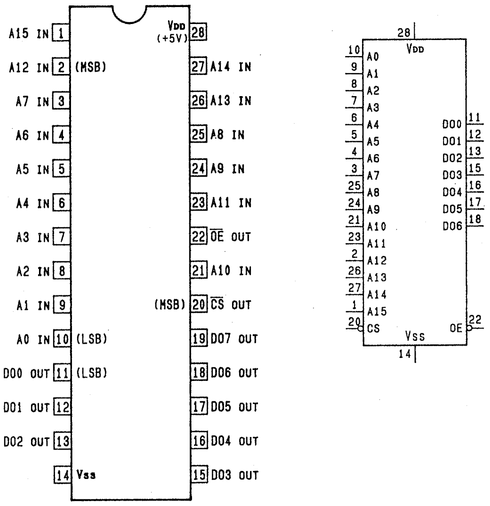
AD847JR (AD) FLAT PACKAGE
OPERATIONAL AMPLIFIER
– TOP VIEW –


NULL 1
–IN 2
+IN 3
4 VEE (–15V)
8 NULL
Vcc (+15V) 7
6 OUTPUT
NC 5

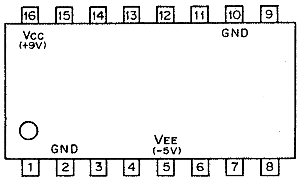
BA225F (ROHM)
CR TIMER
– TOP VIEW –

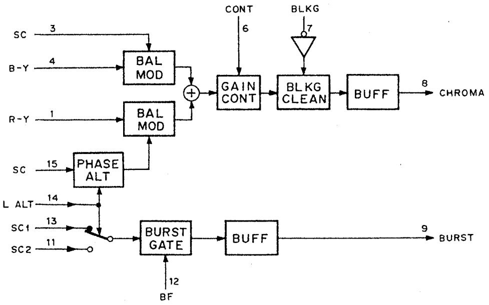

OUT1 1
CR1 2
TRIGGER1 3
4 GND
Vcc (+16V) 8
7 OUT2
6 CR2
5 TRIGGER2
Q CR T
Q CR T
8 Vcc
2 CR1
6 CR2
3 TRG1
5 TRG2
OUT1 1
OUT2 7
GND 4

AT27C512R-15RC (ATMEL)
C-MOS 512K (65536x8) UV-EPROM
– TOP VIEW –


A15 IN 1
A12 IN 2 (MSB)
A7 IN 3
A6 IN 4
A5 IN 5
A4 IN 6
A3 IN 7
A2 IN 8
A1 IN 9
A0 IN 10 (LSB)
DO0 OUT 11 (LSB)
DO1 OUT 12
DO2 OUT 13
14 Vss
VDD (+5V) 28
27 A14 IN
26 A13 IN
25 A8 IN
24 A9 IN
23 A11 IN
22 OE OUT
21 A10 IN
(MSB) 20 CS OUT
19 DO7 OUT
18 DO6 OUT
17 DO5 OUT
16 DO4 OUT
15 DO3 OUT
28 VDD
10 A0
9 A1
8 A2
7 A3
6 A4
5 A5
4 A6
3 A7
25 A8
24 A9
21 A10
23 A11
2 A12
26 A13
27 A14
1 A15
20 CS
Vss 14
DO0 11
DO1 12
DO2 13
DO3 15
DO4 16
DO5 17
DO6 18
OE 22

CX22017 (SONY)
VIDEO SIGNAL PROCESSOR
– TOP VIEW –


16 15 14 13 12 11 10 9
Vcc (+9V)
GND
GND
VEE (-5V)
1 2 3 4 5 6 7 8

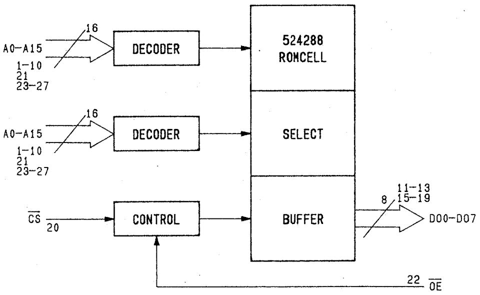

SC 3
B-Y 4
R-Y 1
SC 15
L ALT 14
SC1 13
SC2 11
CONT 6
BLKG 7
BAL MOD
BAL MOD
PHASE ALT
GAIN CONT
BLKG CLEAN
BUFF
8 CHROMA
BURST GATE
BUFF
9 BURST
12 BF

INPUT		DO	OPERATION
CS	OE		
1	×	HIGH-Z	STAND BY
0	1	HIGH-Z	OPERATING
0	0	DO	OPERATING

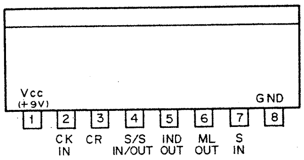
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; LOW OR HIGH LEVEL

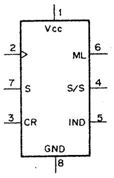
INPUT
A0 – A15 ; ADDRESS INPUT
CS ; CHIP SELECT

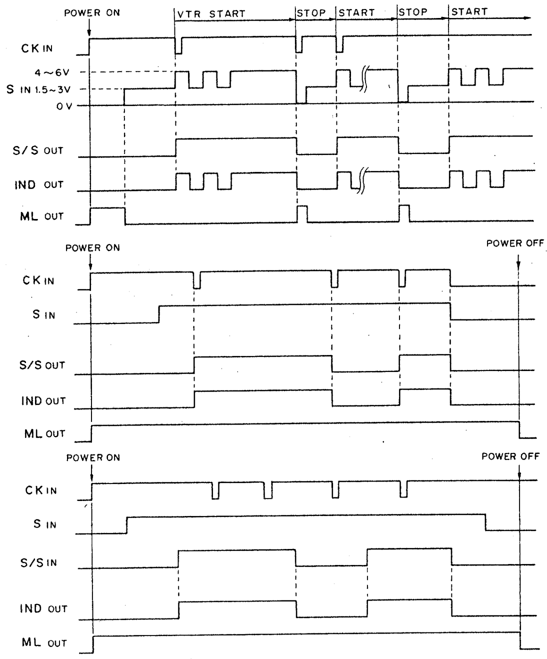
OUTPUT
DO0 – DO7 ; DATA OUTPUT
OE ; OUTPUT ENABLE


A0-A15
1-10
21
23-27
16
DECODER
524288 ROMCELL
A0-A15
1-10
21
23-27
16
DECODER
SELECT
CS 20
CONTROL
BUFFER
8
11-13
15-19
DO0-DO7
22 OE

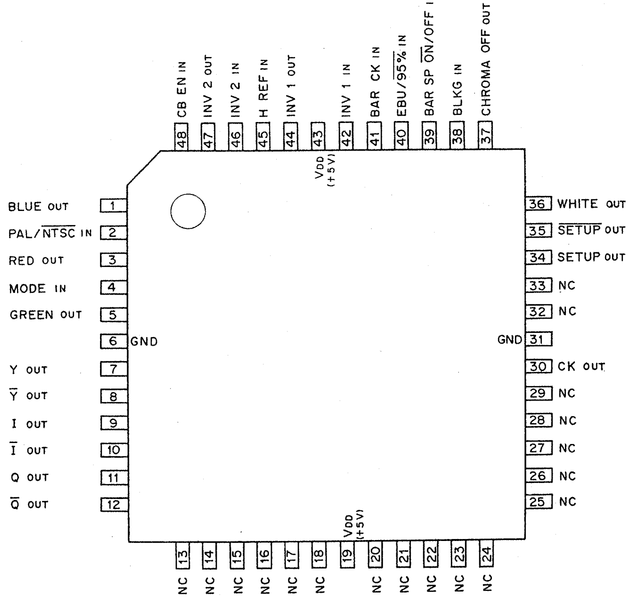
CX518 (SONY)
INTERFACE CIRCUIT BETWEEN VTR AND CAMERA
– SIDE VIEW –


Vcc
(+9V)
GND
1
2
3
4
5
6
7
8
CK IN
CR
S/S IN/OUT
IND OUT
ML OUT
S IN


1
Vcc
2
ML
6
7
S
S/S
4
3
CR
IND
5
GND
8


POWER ON
VTR START
STOP
START
STOP
START
CK IN
4~6V
S IN 1.5~3V
0V
S/S OUT
IND OUT
ML OUT
POWER ON
POWER OFF
CK IN
S IN
S/S OUT
IND OUT
ML OUT
POWER ON
POWER OFF
CK IN
S IN
S/S IN
IND OUT
ML OUT

CX7968A (SONY)
C-MOS COLOR BAR GENERATOR
– TOP VIEW –

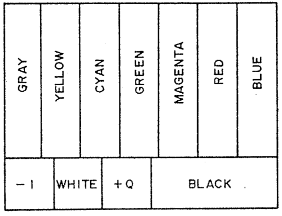

1 BLUE OUT
2 PAL/NTSC IN
3 RED OUT
4 MODE IN
5 GREEN OUT
6 GND
7 Y OUT
8 Ȳ OUT
9 I OUT
10 Ī OUT
11 Q OUT
12 Q̄ OUT
13 NC
14 NC
15 NC
16 NC
17 NC
18 NC
19 VDD (+5V)
20 NC
21 NC
22 NC
23 NC
24 NC
25 NC
26 NC
27 NC
28 NC
29 NC
30 CK OUT
31 GND
32 NC
33 NC
34 SETUP OUT
35 SETUP OUT
36 WHITE OUT
37 CHROMA OFF OUT
38 BLKG IN
39 BAR SP ON/OFF IN
40 EBU/95% IN
41 BAR CK IN
42 INV 1 IN
43 VDD (+5V)
44 INV 1 OUT
45 H REF IN
46 INV 2 IN
47 INV 2 OUT
48 CB EN IN

INPUT				FUNCTION
PAL/NTSC	MODE	EBU/95%	BAR SP	
0	0	0	0	EIAJ COLOR BAR
0	0	0	1	FULL FIELD COLOR BAR
0	0	1	0	INHIBIT
0	0	1	1	INHIBIT
0	1	0	0	EIAJ COLOR BAR
0	1	0	1	FULL FIELD COLOR BAR
0	1	1	0	SMPTE COLOR BAR
0	1	1	1	COLOR BAR + Y BAR
1	0	0	0	95% COLOR BAR
1	0	0	1	INHIBIT
1	0	1	0	EBU COLOR BAR
1	0	1	1	INHIBIT
1	1	0	0	95% COLOR BAR
1	1	0	1	COLOR BAR+Y BAR
1	1	1	0	EBU COLOR BAR
1	1	1	1	INHIBIT

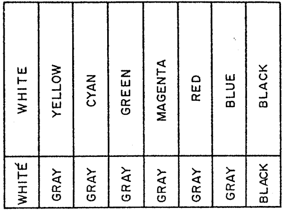
0 ; LOW LEVEL
1 ; HIGH LEVEL

O COLOR BAR PATTERN

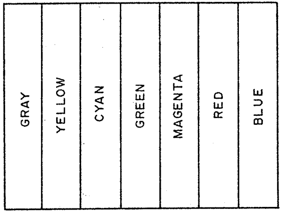
EIAJ COLOR BAR (NTSC)


GRAY
YELLOW
CYAN
GREEN
MAGENTA
RED
BLUE
– I
WHITE
+Q
BLACK

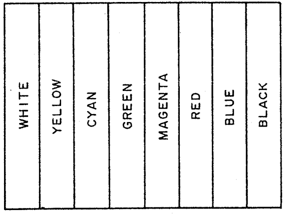
COLOR BAR + Y BAR (PAL) or (NTSC)


WHITE
YELLOW
CYAN
GREEN
MAGENTA
RED
BLUE
BLACK
WHITE
GRAY
GRAY
GRAY
GRAY
GRAY
GRAY
BLACK

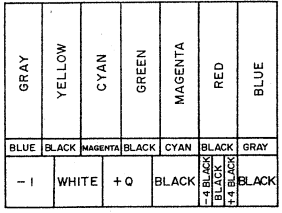
FULL FIELD COLOR BAR (NTSC)


GRAY
YELLOW
CYAN
GREEN
MAGENTA
RED
BLUE

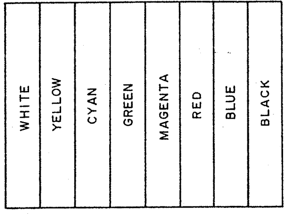
95% COLOR BAR (PAL)

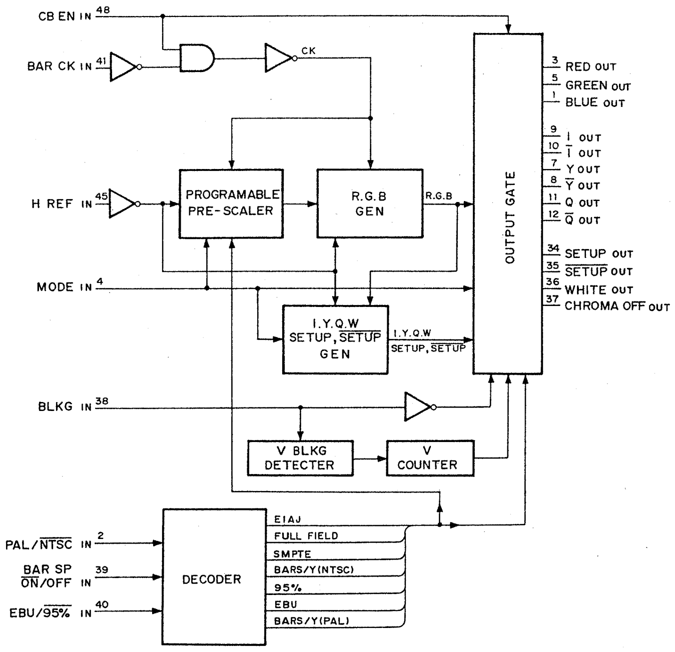

WHITE
YELLOW
CYAN
GREEN
MAGENTA
RED
BLUE
BLACK

SMPTE COLOR BAR (NTSC)


GRAY
YELLOW
CYAN
GREEN
MAGENTA
RED
BLUE
BLUE
BLACK
MAGENTA
BLACK
CYAN
BLACK
GRAY
– I
WHITE
+Q
BLACK
-4 BLACK
BLACK
+4 BLACK
BLACK

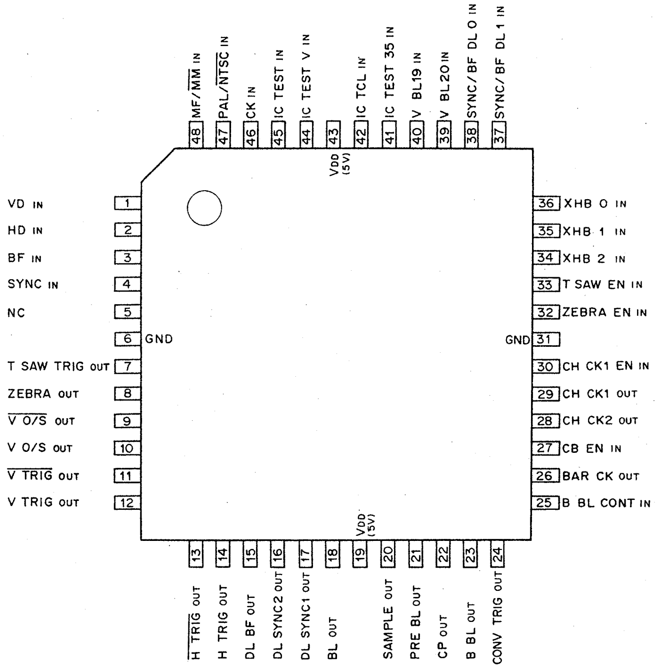
EBU COLOR BAR (PAL)


WHITE
YELLOW
CYAN
GREEN
MAGENTA
RED
BLUE
BLACK


CB EN IN 48
BAR CK IN 41
CK
H REF IN 45
PROGRAMABLE PRE-SCALER
R.G.B GEN
R.G.B
OUTPUT GATE
MODE IN 4
I.Y.Q.W SETUP, SETUP GEN
I.Y.Q.W
SETUP, SETUP
BLKG IN 38
V BLKG DETECTER
V COUNTER
PAL/NTSC IN 2
BAR SP ON/OFF IN 39
EBU/95% IN 40
DECODER
EIAJ
FULL FIELD
SMPTE
BARS/Y(NTSC)
95%
EBU
BARS/Y(PAL)
3 RED OUT
5 GREEN OUT
1 BLUE OUT
9 I OUT
10 I OUT
7 Y OUT
8 Y OUT
11 Q OUT
12 Q OUT
34 SETUP OUT
35 SETUP OUT
36 WHITE OUT
37 CHROMA OFF OUT

CX7969 (SONY)

C-MOS PULSE GENERATOR
- TOP VIEW -


48 MF/MM IN
47 PAL/NTSC IN
46 CK IN
45 IC TEST IN
44 IC TEST V IN
43 VDD (5V)
42 IC TCL IN
41 IC TEST 35 IN
40 V BL19 IN
39 V BL20 IN
38 SYNC/BF DL 0 IN
37 SYNC/BF DL 1 IN
1 VD IN
2 HD IN
3 BF IN
4 SYNC IN
5 NC
6 GND
7 T SAW TRIG OUT
8 ZEBRA OUT
9 V O/S OUT
10 V O/S OUT
11 V TRIG OUT
12 V TRIG OUT
36 XHB 0 IN
35 XHB 1 IN
34 XHB 2 IN
33 T SAW EN IN
32 ZEBRA EN IN
31 GND
30 CH CK1 EN IN
29 CH CK1 OUT
28 CH CK2 OUT
27 CB EN IN
26 BAR CK OUT
25 B BL CONT IN
13 H TRIG OUT
14 H TRIG OUT
15 DL BF OUT
16 DL SYNC2 OUT
17 DL SYNC1 OUT
18 BL OUT
19 VDD (5V)
20 SAMPLE OUT
21 PRE BL OUT
22 CP OUT
23 B BL OUT
24 CONV TRIG OUT

1. SYSTEM DESIGNATION

INPUT	SYSTEM
PAL/$\overline{\text{NTSC}}$ IN	
1	PAL, SECAM
0	NTSC, PALM

2. TYPE OF TUBE

INPUT	FUNCTION
MF/$\overline{\text{MM}}$ IN	
1	MAG-STA TUBE
0	MAG-MAG TUBE

3. V BLKG WIDTH (NTSC ONLY)

INPUT		V BLKG WIDTH
V BL 19	V BL 20	
1	X	19H
0	1	20H
0	0	21H

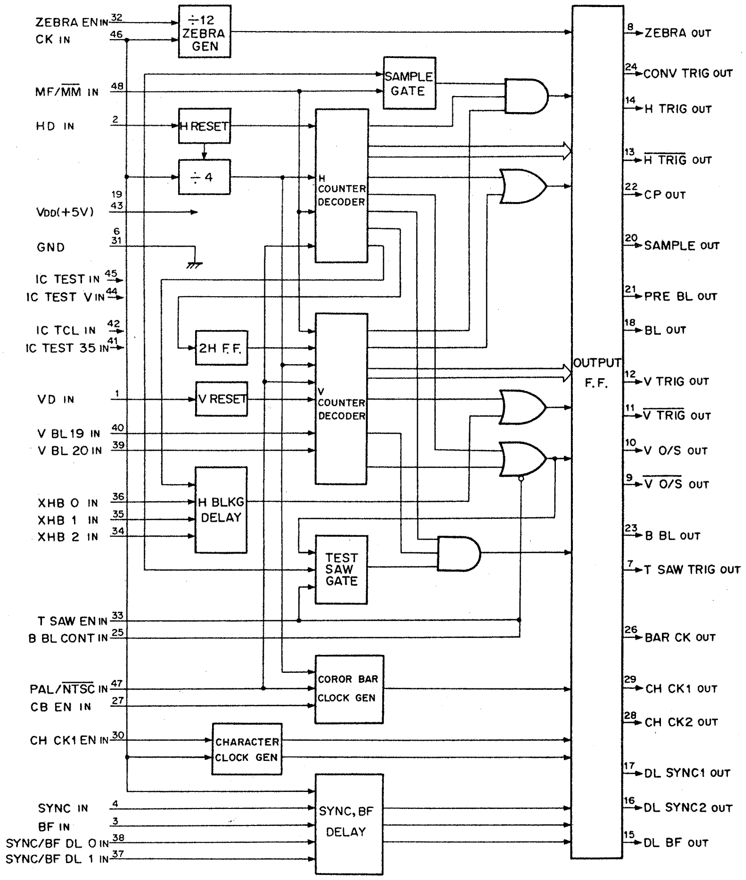
4. H BLKG WIDTH

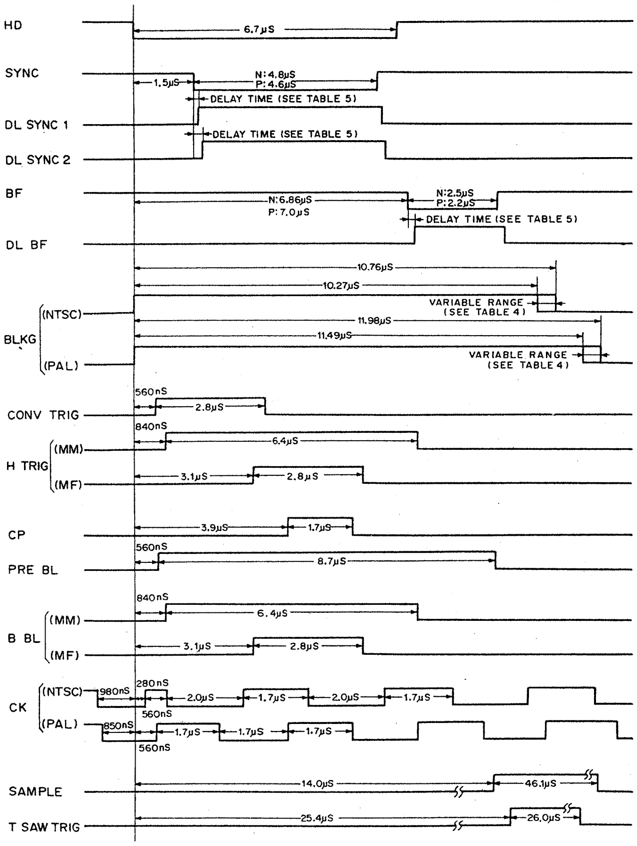
INPUT			BLKG WIDTH (μS)	
XHB2	XHB1	XHB0	NTSC	PAL
1	1	1	10.27	11.49
1	1	0	10.34	11.56
1	0	1	10.41	11.63
1	0	0	10.48	11.70
0	1	1	10.55	11.77
0	1	0	10.62	11.84
0	0	1	10.69	11.91
0	0	0	10.76	11.98

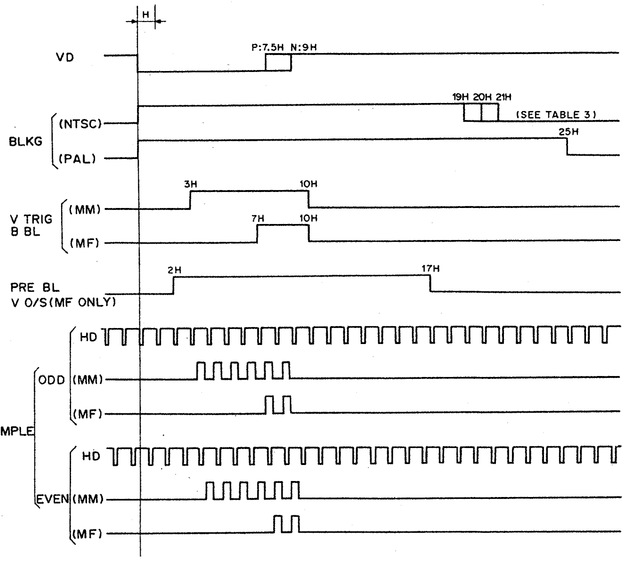
5. DELAY TIME

INPUT		DELAY TIME (nS)		
SYNC/BF DL1	SYNC/BF DL2	DL SYNC 1	DL SYNC 2	DL BF
1	1	140	210	140
1	0	210	280	210
0	1	630	700	630
0	0	700	770	700

1; HIGH LEVEL
0; LOW LEVEL
X; DON'T CARE


ZEBRA EN IN 32
CK IN 46
MF/$\overline{MM}$ IN 48
HD IN 2
VDD(+5V) 19 43
GND 6 31
IC TEST IN 45
IC TEST V IN 44
IC TCL IN 42
IC TEST 35 IN 41
VD IN 1
V BL19 IN 40
V BL 20 IN 39
XHB 0 IN 36
XHB 1 IN 35
XHB 2 IN 34
T SAW EN IN 33
B BL CONT IN 25
PAL/$\overline{NTSC}$ IN 47
CB EN IN 27
CH CK1 EN IN 30
SYNC IN 4
BF IN 3
SYNC/BF DL 0 IN 38
SYNC/BF DL 1 IN 37
÷12 ZEBRA GEN
SAMPLE GATE
H RESET
÷4
H COUNTER DECODER
2H F.F.
V RESET
V COUNTER DECODER
H BLKG DELAY
TEST SAW GATE
COROR BAR CLOCK GEN
CHARACTER CLOCK GEN
SYNC, BF DELAY
OUTPUT F.F.
8 ZEBRA OUT
24 CONV TRIG OUT
14 H TRIG OUT
13 $\overline{H\ TRIG}$ OUT
22 CP OUT
20 SAMPLE OUT
21 PRE BL OUT
18 BL OUT
12 V TRIG OUT
11 $\overline{V\ TRIG}$ OUT
10 V O/S OUT
9 $\overline{V\ O/S}$ OUT
23 B BL OUT
7 T SAW TRIG OUT
26 BAR CK OUT
29 CH CK1 OUT
28 CH CK2 OUT
17 DL SYNC1 OUT
16 DL SYNC2 OUT
15 DL BF OUT

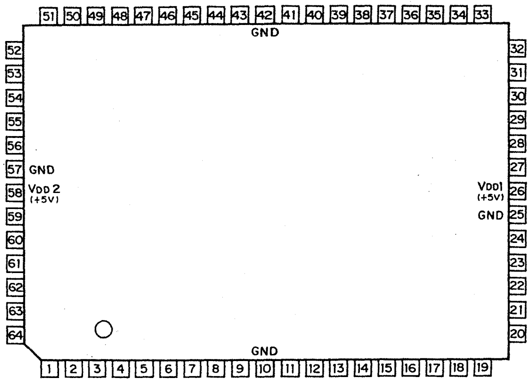

HD
6.7μS
SYNC
1.5μS
N:4.8μS
P:4.6μS
DELAY TIME (SEE TABLE 5)
DL SYNC 1
DELAY TIME (SEE TABLE 5)
DL SYNC 2
BF
N:6.86μS
P:7.0μS
N:2.5μS
P:2.2μS
DELAY TIME (SEE TABLE 5)
DL BF
10.76μS
10.27μS
VARIABLE RANGE (SEE TABLE 4)
BLKG
(NTSC)
(PAL)
11.98μS
11.49μS
VARIABLE RANGE (SEE TABLE 4)
560nS
2.8μS
CONV TRIG
840nS
6.4μS
H TRIG
(MM)
(MF)
3.1μS
2.8μS
CP
3.9μS
1.7μS
PRE BL
560nS
8.7μS
840nS
B BL
(MM)
6.4μS
(MF)
3.1μS
2.8μS
CK
(NTSC)
980nS
280nS
2.0μS
1.7μS
2.0μS
1.7μS
560nS
(PAL)
850nS
1.7μS
1.7μS
1.7μS
560nS
SAMPLE
14.0μS
46.1μS
T SAW TRIG
25.4μS
26.0μS

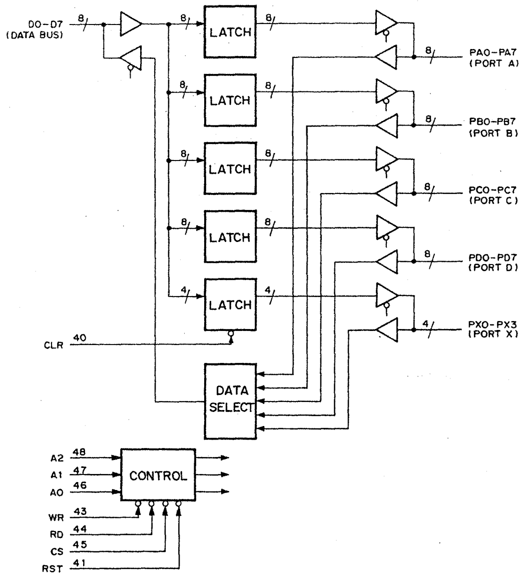

H
VD
P:7.5H N:9H
BLKG
(NTSC)
19H 20H 21H
(SEE TABLE 3)
(PAL)
25H
V TRIG
B BL
(MM)
3H
10H
(MF)
7H
10H
PRE BL
V O/S(MF ONLY)
2H
17H
SAMPLE
ODD
HD
(MM)
(MF)
EVEN
HD
(MM)
(MF)

CXD1095Q (SONY) FLAT PACKAGE

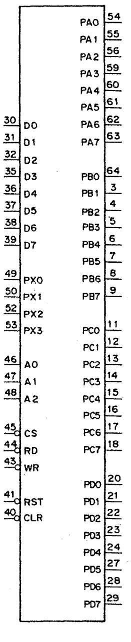
C-MOS I/O PORT EXPANDER

– TOP VIEW –


51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33
GND
52 53 54 55 56 57 58 59 60 61 62 63 64
GND
VDD 2 (+5V)
32 31 30 29 28 27 26 25 24 23 22 21 20
VDD1 (+5V)
GND
GND
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19


D0–D7 (DATA BUS)
8
LATCH
LATCH
LATCH
LATCH
LATCH
4
PA0–PA7 (PORT A)
PB0–PB7 (PORT B)
PC0–PC7 (PORT C)
PD0–PD7 (PORT D)
PX0–PX3 (PORT X)
CLR 40
DATA SELECT
A2 48
A1 47
A0 46
CONTROL
WR 43
RD 44
CS 45
RST 41

PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1			NC	17	○	○	PC6	33			NC	49	○	○	PX0
2			NC	18	○	○	PC7	34			NC	50	○	○	PX1
3	○	○	PB1	19			NC	35	○	○	D3	51			NC
4	○	○	PB2	20	○	○	PD0	36	○	○	D4	52	○	○	PX2
5	○	○	PB3	21	○	○	PD1	37	○	○	D5	53	○	○	PX3
6	○	○	PB4	22	○	○	PD2	38	○	○	D6	54	○	○	PA0
7	○	○	PB5	23	○	○	PD3	39	○	○	D7	55	○	○	PA1
8	○	○	PB6	24	○	○	PD4	40	○		CLR	56	○	○	PA2
9	○	○	PB7	25			GND	41	○		RST	57			GND
10			GND	26	○		VDD (+5V)	42			GND	58	○		VDD (+5V)
11	○	○	PC0	27	○	○	PD5	43	○		WR	59	○	○	PA3
12	○	○	PC1	28	○	○	PD6	44	○		RD	60	○	○	PA4
13	○	○	PC2	29	○	○	PD7	45	○		CS	61	○	○	PA5
14	○	○	PC3	30	○	○	D0	46	○		A0	62	○	○	PA6
15	○	○	PC4	31	○	○	D1	47	○		A1	63	○	○	PA7
16	○	○	PC5	32	○	○	D2	48	○		A2	64	○	○	PB0


30 D0
31 D1
32 D2
35 D3
36 D4
37 D5
38 D6
39 D7
49 PX0
50 PX1
52 PX2
53 PX3
46 A0
47 A1
48 A2
45 CS
44 RD
43 WR
41 RST
40 CLR
PA0 54
PA1 55
PA2 56
PA3 59
PA4 60
PA5 61
PA6 62
PA7 63
PB0 64
PB1 3
PB2 4
PB3 5
PB4 6
PB5 7
PB6 8
PB7 9
PC0 11
PC1 12
PC2 13
PC3 14
PC4 15
PC5 16
PC6 17
PC7 18
PD0 20
PD1 21
PD2 22
PD3 23
PD4 24
PD5 27
PD6 28
PD7 29

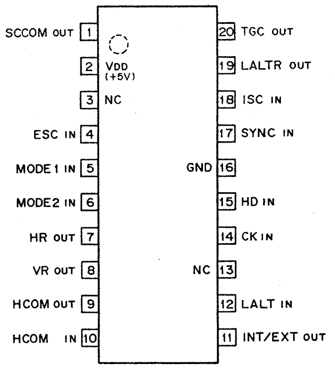
CS	RD	WR	A2	A1	A0	MODE
0	0	1	0	0	0	PORT A → DATA BUS
0	0	1	0	0	1	PORT B → DATA BUS
0	0	1	0	1	0	PORT C → DATA BUS
0	0	1	0	1	1	PORT D → DATA BUS
0	0	1	1	0	0	PORT X → DATA BUS
0	0	1	1	0	1	——
0	0	1	1	1	0	——
0	0	1	1	1	1	——
0	1	0	0	0	0	DATA BUS → PORT A
0	1	0	0	0	1	DATA BUS → PORT B
0	1	0	0	1	0	DATA BUS → PORT C
0	1	0	0	1	1	DATA BUS → PORT D
0	1	0	1	0	0	DATA BUS → PORT X
0	1	0	1	0	1	——
0	1	0	1	1	0	DATA BUS → CTL REG.1
0	1	0	1	1	1	DATA BUS → CTL REG.2
1	X	X	X	X	X	DATA BUS ; HI-Z

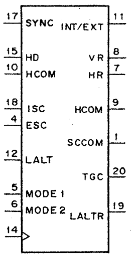
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z, HIGH IMPEDANCE

D0–D7 ; DATA BUS INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
RD ; READ STROBE INPUT
WR ; WRITE STROBE INPUT
A0–A2 ; ADDRESS INPUT
RST ; RESET INPUT
CLR ; CLEAR INPUT
PA0–PA7 ; PORT A INPUTS/OUTPUTS
PB0–PB7 ; PORT B INPUTS/OUTPUTS
PC0–PC7 ; PORT C INPUTS/OUTPUTS
PD0–PD7 ; PORT D INPUTS/OUTPUTS
PX0–PX3 ; PORT X INPUTS/OUTPUTS

CXD1216M (SONY) FLAT PACKAGE

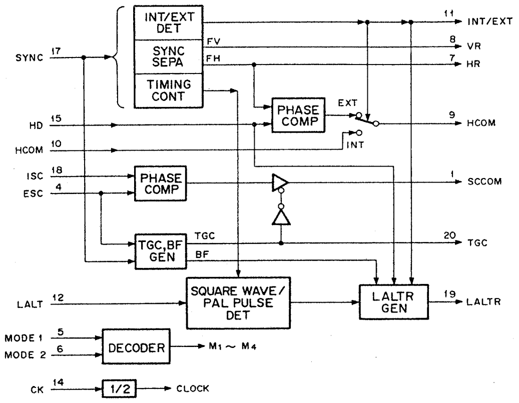
C-MOS GENLOCK DRIVER
– TOP VIEW –


SCCOM OUT 1
2 VDD (+5V)
3 NC
ESC IN 4
MODE 1 IN 5
MODE2 IN 6
HR OUT 7
VR OUT 8
HCOM OUT 9
HCOM IN 10
20 TGC OUT
19 LALTR OUT
18 ISC IN
17 SYNC IN
GND 16
15 HD IN
14 CK IN
NC 13
12 LALT IN
11 INT/EXT OUT


17 SYNC
15 HD
10 HCOM
18 ISC
4 ESC
12 LALT
5 MODE 1
6 MODE 2
14
INT/EXT 11
VR 8
HR 7
HCOM 9
SCCOM 1
TGC 20
LALTR 19

INPUT		MODE	SYSTEM
MODE1	MODE2		
0	0	M1	PAL-VBS
1	0	M2	PALM-VBS
0	1	M3	PAL,SECAM-VS/SC/LALT
1	1	M4	NTSC-VBS,NTSC-VS/SC PALM-VS/SC/LALT

0 ; LOW LEVEL
1 ; HIGH LEVEL

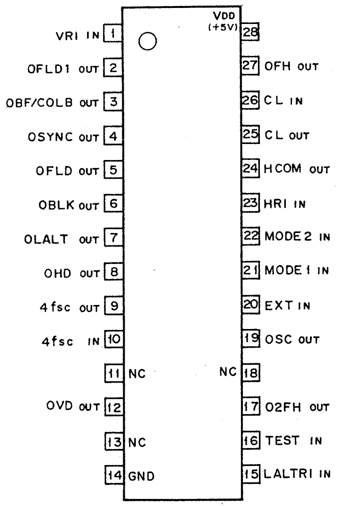

SYNC 17
HD 15
HCOM 10
ISC 18
ESC 4
LALT 12
MODE 1 5
MODE 2 6
CK 14
INT/EXT DET
SYNC SEPA
TIMING CONT
FV
FH
PHASE COMP
EXT
INT
PHASE COMP
TGC,BF GEN
TGC
BF
SQUARE WAVE / PAL PULSE DET
LALTR GEN
DECODER
M1 ~ M4
1/2
CLOCK
11 INT/EXT
8 VR
7 HR
9 HCOM
1 SCCOM
20 TGC
19 LALTR

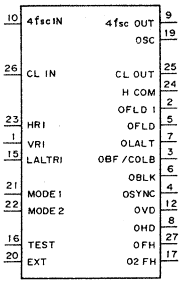
INPUT
CK ; 4fsc CLOCK INPUT
ESC ; SC/COLOR BURST
HCOM ; PHASE COMPARATE FROM CXD1217
HD ; H DRIVE FROM CXD1217
ISC ; SUBCARRIER FROM CXD1217
LALT ; LALT FROM REFERENCE SIGNAL GENERATOR
MODE1,2 ; SYSTEM SELECT
SYNC ; SYNC FROM REFERENCE SIGNAL GENERATOR

OUTPUT
HCOM ; PHASE COMPARATOR HR WITH HD
HR ; fH OF SYNC SEPARATE
INT/EXT ; INTERNAL/EXTERNAL SPECIFIED
LALTR ; LINE CHANGE RESET
SCCOM ; PHASE COMPARATOR ESC WITH ISC
TGC ; TRISTATE CONTROL
VR ; fV OF SYNC SEPARATE

CXD1217M (SONY) FLAT PACKAGE

C-MOS SYNC GENERATOR
– TOP VIEW –

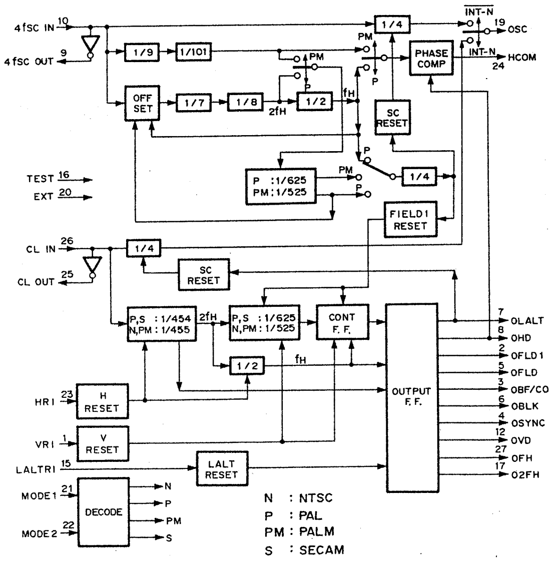

VRI IN 1
OFLD1 OUT 2
OBF/COLB OUT 3
OSYNC OUT 4
OFLD OUT 5
OBLK OUT 6
OLALT OUT 7
OHD OUT 8
4fsc OUT 9
4fsc IN 10
11 NC
OVD OUT 12
13 NC
14 GND
VDD (+5V) 28
27 OFH OUT
26 CL IN
25 CL OUT
24 HCOM OUT
23 HRI IN
22 MODE 2 IN
21 MODE 1 IN
20 EXT IN
19 OSC OUT
NC 18
17 O2FH OUT
16 TEST IN
15 LALTRI IN


10 4fscIN
26 CL IN
23 HRI
1 VRI
15 LALTRI
21 MODE 1
22 MODE 2
16 TEST
20 EXT
4fsc OUT 9
OSC 19
CL OUT 25
H COM 24
OFLD 1 2
OFLD 5
OLALT 7
OBF/COLB 3
OBLK 6
OSYNC 4
OVD 12
OHD 8
OFH 27
O2 FH 17

SYSTEM	4fsc	CLOCK
NTSC	910fH	910fH
PAL	1135fH+2fv	908fH
PALM	909fH	910fH
SECAM	—	908fH

INPUT		SYSTEM
MODE1	MODE2	
0	0	NTSC
0	1	SECAM
1	0	PALM
1	1	PAL

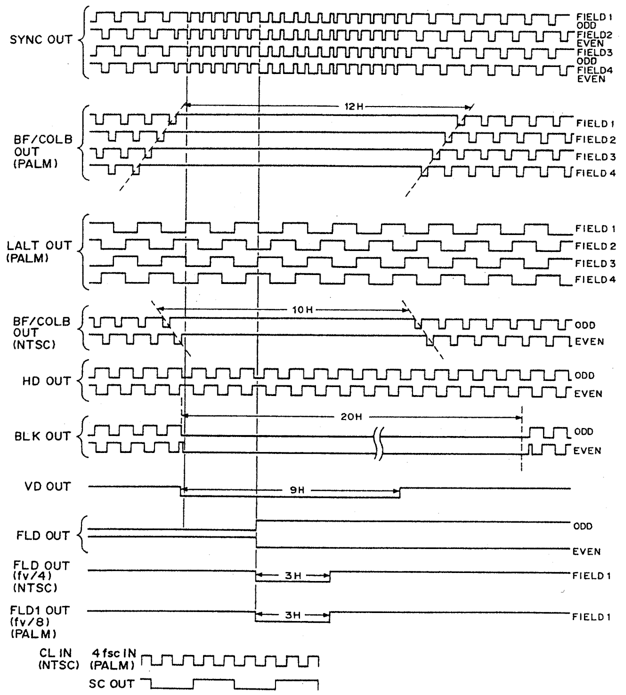
0 ; LOW LEVEL
1 ; HIGH LEVEL

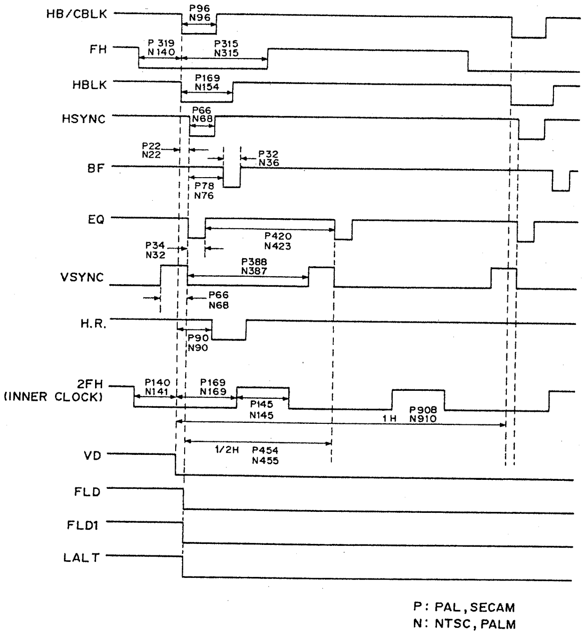

4fSC IN 10
4fSC OUT 9
TEST 16
EXT 20
CL IN 26
CL OUT 25
HRI 23
VRI 1
LALTRI 15
MODE1 21
MODE2 22
1/9
1/101
OFF SET
1/7
1/8
2fH
1/2
fH
PM
P
1/4
PHASE COMP
SC RESET
P :1/625
PM:1/525
1/4
FIELD1 RESET
1/4
SC RESET
P,S : 1/454
N,PM : 1/455
2fH
P,S : 1/625
N,PM : 1/525
CONT F. F.
1/2
fH
H RESET
V RESET
LALT RESET
DECODE
N
P
PM
S
OUTPUT F. F.
INT-N
19 OSC
INT-N
24 HCOM
7 OLALT
8 OHD
2 OFLD1
5 OFLD
3 OBF/COLB
6 OBLK
4 OSYNC
12 OVD
27 OFH
17 O2FH
N : NTSC
P : PAL
PM : PALM
S : SECAM

INPUT
4fSC IN ; 4fSC INPUT
CL IN ; CLOCK INPUT
EXT ; SYNC MODE SELECT
(L ; INTERNAL/H ; EXTERNAL)
HRI ; H RESET
LALTRI ; LINE CHANGE RESET
MODE 1,2 ; SYSTEM SELECT
VRI ; V RESET

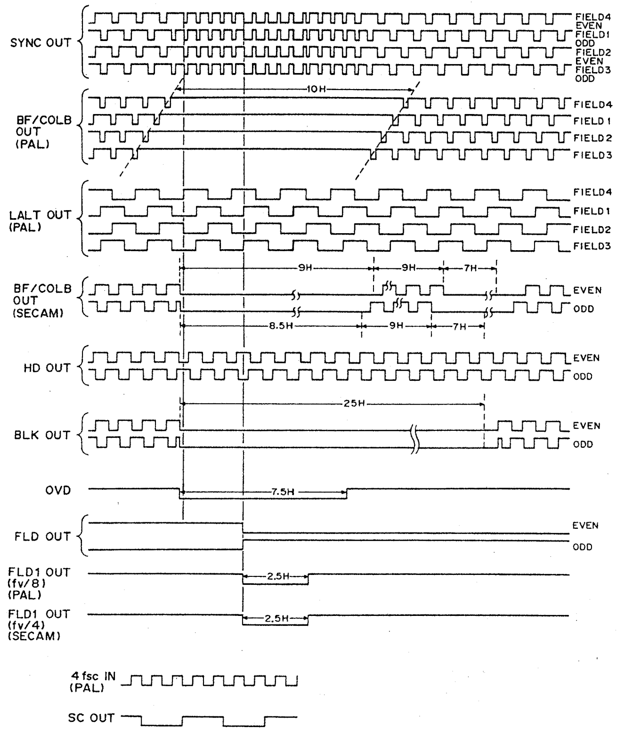
OUT PUT
4fSC OUT ; 4fSC OUTPUT
CL OUT ; CLOCK OUTPUT
HCOM ; PHASE COMPARATOR
O2fH ; 2fH OUTPUT
OBF/COLB ; BURST FLAG/COLOR BLANKING
OBLK ; COMPOSITE BLANKING
OFH ; H FREQUENCE
OFLD ; EVEN, ODD
OFLD1 ; FIELD1
OHD ; H DRIVE
OLALT ; LINE CHANGE
OSC ; SUBCARRIER
OSYNC ; COMPOSITE SYNC
OVD ; V DRIVE

(NTSC, PALM)


SYNC OUT
FIELD 1 ODD
FIELD2 EVEN
FIELD3 ODD
FIELD4 EVEN
BF/COLB OUT (PALM)
12H
FIELD 1
FIELD 2
FIELD 3
FIELD 4
LALT OUT (PALM)
FIELD 1
FIELD 2
FIELD 3
FIELD 4
BF/COLB OUT (NTSC)
10 H
ODD
EVEN
HD OUT
ODD
EVEN
BLK OUT
20H
ODD
EVEN
VD OUT
9H
FLD OUT
ODD
EVEN
FLD OUT (fv/4) (NTSC)
3H
FIELD 1
FLD1 OUT (fv/8) (PALM)
3H
FIELD 1
CL IN (NTSC)
4 fsc IN (PALM)
SC OUT

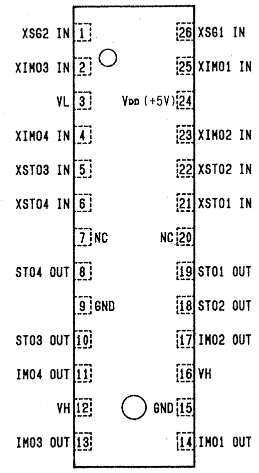

HB/CBLK
P96
N96
FH
P 319
N 140
P315
N315
HBLK
P169
N154
HSYNC
P66
N68
P22
N22
P32
N36
BF
P78
N76
EQ
P420
N423
P34
N32
P388
N387
VSYNC
P66
N68
H.R.
P90
N90
2FH (INNER CLOCK)
P140
N141
P169
N169
P145
N145
1 H
P908
N910
VD
1/2H
P454
N455
FLD
FLD1
LALT
P: PAL, SECAM
N: NTSC, PALM

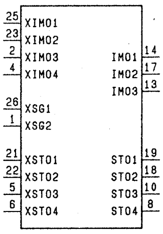
(PAL, SECAM)


SYNC OUT
FIELD4 EVEN
FIELD1 ODD
FIELD2 EVEN
FIELD3 ODD
BF/COLB OUT (PAL)
10H
FIELD4
FIELD 1
FIELD2
FIELD3
LALT OUT (PAL)
FIELD4
FIELD1
FIELD2
FIELD3
BF/COLB OUT (SECAM)
9H
9H
7H
EVEN
ODD
8.5H
9H
7H
HD OUT
EVEN
ODD
BLK OUT
25H
EVEN
ODD
OVD
7.5H
FLD OUT
EVEN
ODD
FLD1 OUT (fv/8) (PAL)
2.5H
FLD1 OUT (fv/4) (SECAM)
2.5H
4 fsc IN (PAL)
SC OUT

CXD1262J (SONY)

C-MOS CCD H CLOCK DRIVER
– TOP VIEW –


XSG2 IN 1
XIM03 IN 2
VL 3
XIM04 IN 4
XST03 IN 5
XST04 IN 6
7 NC
ST04 OUT 8
9 GND
ST03 OUT 10
IM04 OUT 11
VH 12
IM03 OUT 13
26 XSG1 IN
25 XIM01 IN
VDD (+5V) 24
23 XIM02 IN
22 XST02 IN
21 XST01 IN
NC 20
19 ST01 OUT
18 ST02 OUT
17 IM02 OUT
16 VH
GND 15
14 IM01 OUT

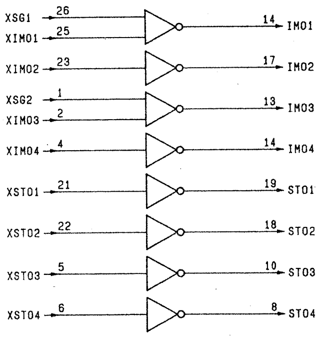

25 XIM01
23 XIM02
2 XIM03
4 XIM04
26 XSG1
1 XSG2
21 XST01
22 XST02
5 XST03
6 XST04
IM01 14
IM02 17
IM03 13
ST01 19
ST02 18
ST03 10
ST04 8

INPUT
VH ; VOLTAGE HIGH POWERSOURCE (+ 15V)
VL ; VOLTAGE LOW POWERSOURCE (– 9V)
XIMO1 – XIMO4 ; OUT CONTROL INVERSION (XIMO1 – XIMO4)
XSG1 – XSG2 ; OUT CONTROL INVERSION (XSG1 – XSG2)
XSTO1 – XSTO4 ; OUT CONTROL INVERSION (XSTO1 – XSTO2)

OUTPUT
IMO1 – IMO4 ; HIGH TENSION (IMO1 – IMO4)
STO1 – STO4 ; HIGH TENSION (STO1 – STO4)

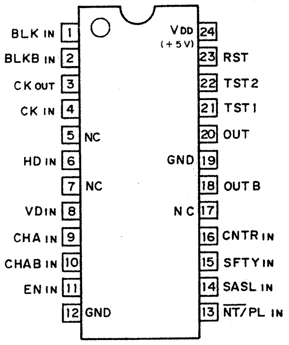
INPUT			OUTPUT	
XIM1,3	XSG1,2	XIM2,4,XST1~4	IM1,3	IM2,4,ST1~4
0	1	×	VM	×
1	1	×	VL	×
0	0	×	VH	×
1	0	×	Z	×
×	×	0	×	VM
×	×	1	×	VL

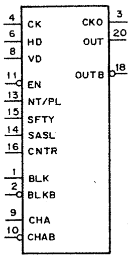
0 ; LOW LEVEL × ; DON'T CARE
1 ; HIGH LEVEL Z ; HIGH IMPEDANCE


XSG1 26
XIM01 25
14 IM01
XIM02 23
17 IM02
XSG2 1
XIM03 2
13 IM03
XIM04 4
14 IM04
XST01 21
19 ST01
XST02 22
18 ST02
XST03 5
10 ST03
XST04 6
8 ST04

CXD8154BM (SONY)

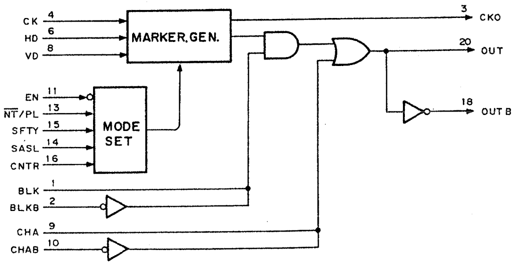
C-MOS GATE ARRAY
– TOP VIEW –


BLK IN 1
BLKB IN 2
CK OUT 3
CK IN 4
5 NC
HD IN 6
7 NC
VDIN 8
CHA IN 9
CHAB IN 10
EN IN 11
12 GND
VDD (+5V) 24
23 RST
22 TST2
21 TST1
20 OUT
GND 19
18 OUT B
NC 17
16 CNTR IN
15 SFTY IN
14 SASL IN
13 NT/PL IN


4 CK
6 HD
8 VD
11 EN
13 NT/PL
15 SFTY
14 SASL
16 CNTR
1 BLK
2 BLKB
9 CHA
10 CHAB
CKO 3
OUT 20
OUTB 18

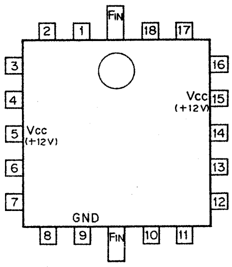
INPUT
BLK ; $\underline{\text{BLKG}}$ IN
BLKB ; $\overline{\text{BLKG}}$ IN
CHA ; $\underline{\text{CHR}}$ IN
CHAB ; $\overline{\text{CHR}}$ IN
CK ; CLOCK IN
CNTR ; CENTER $\overline{\text{ON}}$/OFF
EN ; ENABLE IN
$\underline{\text{HD}}$; $\underline{\text{HORIZONTAL}}$ DRIVE IN
$\overline{\text{NT}}$/PL ; $\overline{\text{NTSC}}$/PAL
RST ; RESET
SASL ; SAFETY $\overline{\text{80}}$/90
SFTY ; SAFETY $\overline{\text{ON}}$/OFF
VD ; VERTICAL DRIVE IN
TST1 ; TEST 1
TST2 ; TEST 2

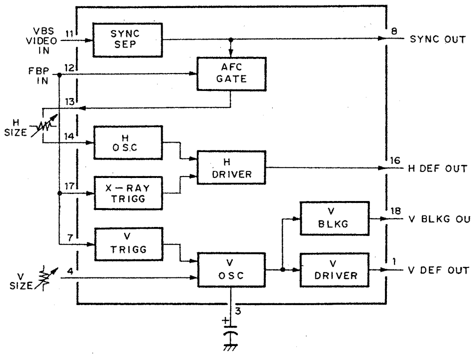
OUTPUT
OUT ; $\underline{\text{OUTPUT}}$
OUTB ; $\overline{\text{OUTPUT}}$
CKO ; CLOCK OUT


CK 4
HD 6
VD 8
MARKER.GEN.
EN 11
NT/PL 13
SFTY 15
SASL 14
CNTR 16
MODE SET
BLK 1
BLKB 2
CHA 9
CHAB 10
3 CKO
20 OUT
18 OUT B

HA11423MP (HITACHI) FLAT PACKAGE

TV H/V SYNC SIGNAL PROCESSOR
– TOP VIEW –

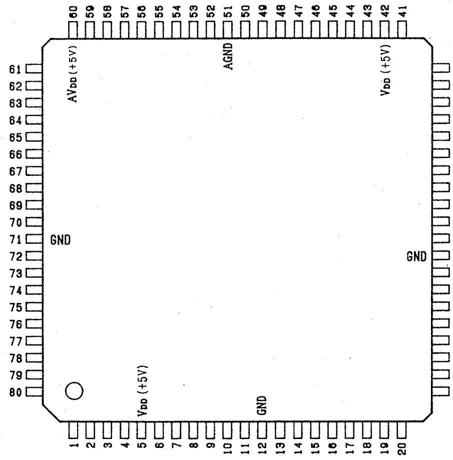

2
1
FIN
18
17
3
4
5 Vcc (+12V)
6
7
16
15 Vcc (+12V)
14
13
12
GND
8
9
FIN
10
11


VBS VIDEO IN 11
SYNC SEP
8 SYNC OUT
FBP IN 12
AFC GATE
13
H SIZE
14
H OSC
H DRIVER
16 H DEF OUT
17
X-RAY TRIGG
V BLKG
18 V BLKG OUT
7
V TRIGG
V SIZE 4
V OSC
V DRIVER
1 V DEF OUT
3

HD6475328F10 (HITACHI)

C-MOS 16-BIT MICROPROCESSOR

– TOP VIEW –

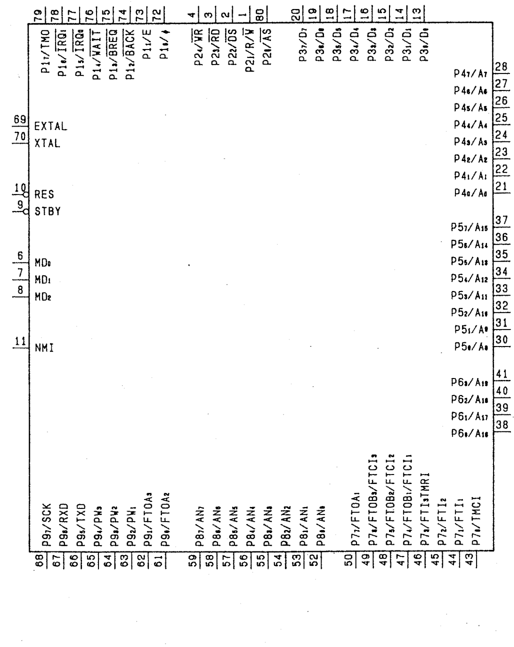

AVDD (+5V)
AGND
VDD (+5V)
GND
GND
VDD (+5V)
GND
1–20
21–40
41–60
61–80

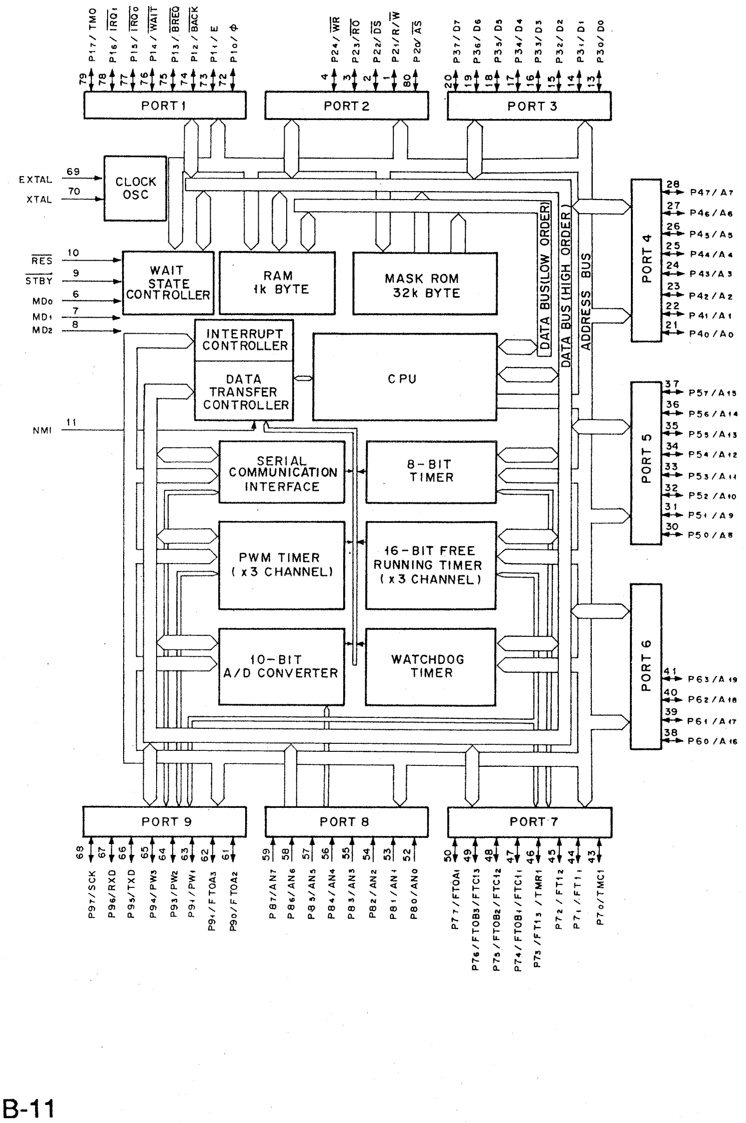
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	P21/R/$\overline{\text{W}}$	28	I/O	P47/A7	55	I/O	P83/AN3
2	I/O	P22/$\overline{\text{DS}}$	29	–	GND	56	I/O	P84/AN4
3	I/O	P23/$\overline{\text{RD}}$	30	I/O	P50/A8	57	I/O	P85/AN5
4	I/O	P24/$\overline{\text{WR}}$	31	I/O	P51/A9	58	I/O	P86/AN6
5	–	VDD	32	I/O	P52/A10	59	I/O	P87/AN7
6	I	MD0	33	I/O	P53/A11	60	–	AVDD
7	I	MD1	34	I/O	P54/A12	61	I/O	P90/FTOA2
8	I	MD2	35	I/O	P55/A13	62	I/O	P91/FTOA3
9	I	$\overline{\text{STBY}}$	36	I/O	P56/A14	63	I/O	P92/PW1
10	I	$\overline{\text{RES}}$	37	I/O	P57/A15	64	I/O	P93/PW2
11	I	NMI	38	I/O	P60/A16	65	I/O	P94/PW3
12	–	GND	39	I/O	P61/A17	66	I/O	P95/TXD
13	I/O	P30/D0	40	I/O	P62/A18	67	I/O	P96/RXD
14	I/O	P31/D1	41	I/O	P63/A19	68	I/O	P97/SCK
15	I/O	P32/D2	42	–	VDD	69	I	EXTAL
16	I/O	P33/D3	43	I/O	P70/TMCI	70	I	XTAL
17	I/O	P34/D4	44	I/O	P71/FTI1	71	–	Vss
18	I/O	P35/D5	45	I/O	P72/FTI2	72	I/O	P10/Φ
19	I/O	P36/D6	46	I/O	P73/FTI3/TMRI	73	I/O	P11/E
20	I/O	P37/D7	47	I/O	P74/FTOB1/FTCI1	74	I/O	P12/$\overline{\text{BACK}}$
21	I/O	P40/A0	48	I/O	P75/FTOB2/FTCI2	75	I/O	P12/$\overline{\text{BREQ}}$
22	I/O	P41/A1	49	I/O	P76/FTOB3/FTCI3	76	I/O	P12/$\overline{\text{WAIT}}$
23	I/O	P42/A2	50	O	P77/FTOA1	77	I/O	P12/$\overline{\text{IRQ0}}$
24	I/O	P43/A3	51	–	AGND	78	I/O	P12/$\overline{\text{IRQ1}}$
25	I/O	P44/A4	52	I/O	P80/AN0	79	I/O	P12/TMO
26	I/O	P45/A5	53	I/O	P81/AN1	80	I/O	P12/$\overline{\text{AS}}$
27	I/O	P46/A6	54	I/O	P82/AN2			

INPUT
AN0 – AN7 ; ANALOG INPUT
BREQ ; BUS REQUEST
EXTAL ; CONNECTED TO CRYSTAL OSCILLATOR.
FTCI1 – FTCI3 ; FRT COUNTER CLOCK INPUT (CHANNEL 1 TO 3)
FTI1 – FTI3 ; FRT INPUT CAPTURE INPUT (CHANNEL 1 TO 3)
IRQ0, 1 ; INTERRUPTION REQUEST 0 AND 1
MD0 – MD2 ; MODE SETTING
NMI ; NON MASKABLE INTERRUPTION
P80 – P87 ; PORT 8
RES ; RESET
RXD ; RECEIVE DATA
SYBY ; STANDBY
TMCI ; 8-BIT TIMER CLOCK INPUT
TMRI ; 8-BIT TIMER COUNTER RESET INPUT
WAIT ; WAIT
XTAL ; CONNECTED TO CRYSTAL OSCILLATOR.

OUTPUT
A0 – A19 ; ADDRESS BUS
AS ; ADDRESS STROBE
BACK ; BUS REQUEST ACKNOWLEDGE
DS ; DATA STROBE
E ; ENABLE CLOCK
FTOA1 – FTOA3 ; FRT OUTPUT COMPARE A OUTPUT (CHANNEL 1 TO 3)
FTOB1 – FTOB3 ; FRT OUTPUT COMPARE B OUTPUT (CHANNEL 1 TO 3)
PW1 – PW3 ; PWM TIMER OUTPUT (CHANNEL 1 TO 3)
R/W ; READ/WRITE
RD ; READ
TMO ; 8-BIT TIMER OUTPUT
TXD ; SEND DATA
WR ; WRITE
ϕ ; SYSTEM CLOCK

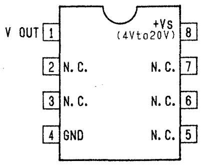
INPUT/OUTPUT
D0 – D7 ; DATA BUS
P10 – P17 ; PORT 1
P20 – P24 ; PORT 2
P30 – P37 ; PORT 3
P40 – P47 ; PORT 4
P50 – P57 ; PORT 5
P60 – P63 ; PORT 6
P70 – P77 ; PORT 7
P90 – P97 ; PORT 9
SCK ; SERIAL CLOCK INPUT/OUTPUT

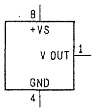

EXTAL
XTAL
RES
STBY
MD0
MD1
MD2
NMI
P17/TMO
P16/IRQ1
P15/IRQ0
P14/WAIT
P13/BREQ
P12/BACK
P11/E
P10/ϕ
P24/WR
P23/RD
P22/DS
P21/R/W
P20/AS
P37/D7 – P30/D0
P47/A7 – P40/A0
P57/A15 – P50/A8
P63/A19 – P60/A16
P97/SCK
P96/RXD
P95/TXD
P94/PW3
P93/PW2
P92/PW1
P91/FTOA3
P90/FTOA2
P87/AN7 – P80/AN0
P77/FTOA1
P76/FTOB3/FTCI3
P75/FTOB2/FTCI2
P74/FTOB1/FTCI1
P73/FTI3/TMRI
P72/FTI2
P71/FTI1
P70/TMCI


PORT 1
PORT 2
PORT 3
PORT 4
PORT 5
PORT 6
PORT 7
PORT 8
PORT 9
CLOCK OSC
EXTAL
XTAL
RES
STBY
MD0
MD1
MD2
NMI
WAIT STATE CONTROLLER
RAM 1k BYTE
MASK ROM 32k BYTE
INTERRUPT CONTROLLER
DATA TRANSFER CONTROLLER
CPU
DATA BUS (LOW ORDER)
DATA BUS (HIGH ORDER)
ADDRESS BUS
SERIAL COMMUNICATION INTERFACE
8-BIT TIMER
PWM TIMER (x3 CHANNEL)
16-BIT FREE RUNNING TIMER (x3 CHANNEL)
10-BIT A/D CONVERTER
WATCHDOG TIMER

LM35DM (NSC) FLAT PACKAGE

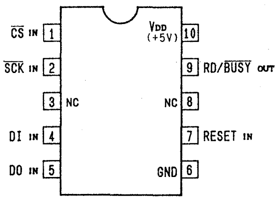
TEMPERATURE SENSOR
- TOP VIEW -

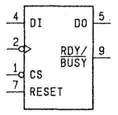

V OUT 1
2 N.C.
3 N.C.
4 GND
+VS (4Vto20V) 8
N.C. 7
N.C. 6
N.C. 5


8
+VS
V OUT 1
GND
4

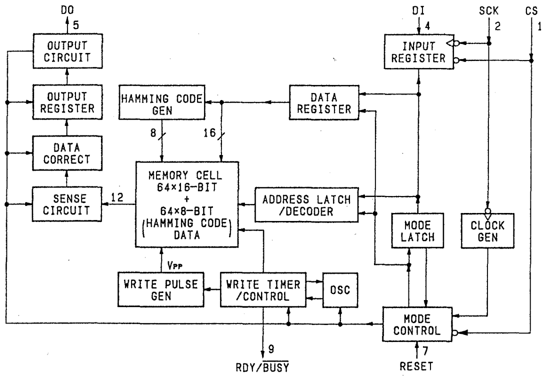
M6M80011AFP (MITSUBISHI) FLAT PACKAGE

C-MOS 1k (64x16) BIT ERASABLE PROM
- TOP VIEW -


CS IN 1
SCK IN 2
3 NC
DI IN 4
DO IN 5
VDD (+5V) 10
9 RD/BUSY OUT
NC 8
7 RESET IN
GND 6

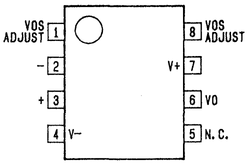

4 DI
DO 5
2
RDY/BUSY 9
1 CS
7 RESET

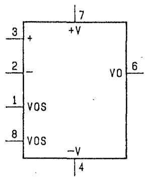
CS : CHIP SELECT INPUT
DI : DATA INPUT
DO : DATA OUTPUT
RDY/BUSY : BUSY OUTPUT
RESET : RESET INPUT
SCK : CLOCK INPUT

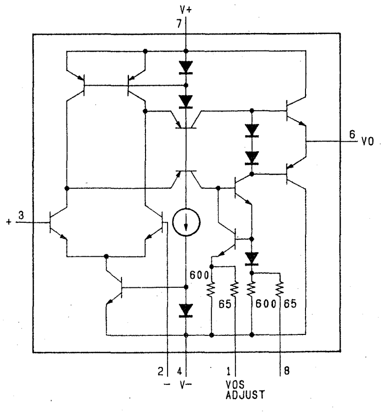

DO
5
OUTPUT CIRCUIT
OUTPUT REGISTER
DATA CORRECT
SENSE CIRCUIT
12
HAMMING CODE GEN
8
16
MEMORY CELL 64×16-BIT + 64×8-BIT (HAMMING CODE) DATA
VPP
WRITE PULSE GEN
WRITE TIMER /CONTROL
OSC
DATA REGISTER
ADDRESS LATCH /DECODER
DI
4
SCK
2
CS
1
INPUT REGISTER
MODE LATCH
CLOCK GEN
MODE CONTROL
9
RDY/BUSY
7
RESET

LM6365 (NSC) FLAT PACKAGE

HIGH SPEED OPERATIONAL AMPLIFIER
- TOP VIEW -

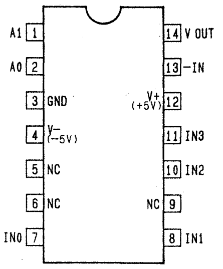

VOS ADJUST 1
- 2
+ 3
4 V-
8 VOS ADJUST
V+ 7
6 VO
5 N.C.

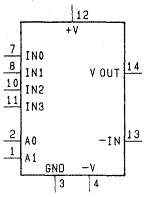

7
+V
3 +
2 -
VO 6
1 VOS
8 VOS
-V
4

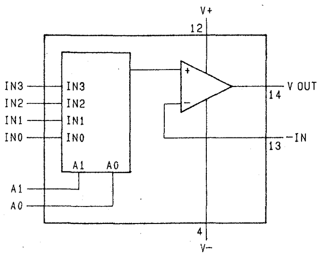

V+
7
6 VO
+ 3
600
65
600
65
2
-
4
V-
1
VOS ADJUST
8

MAX454CSD (MAXIM)

C-MOS VIDEO MULTIPLEXER/AMPLIFIER
- TOP VIEW -

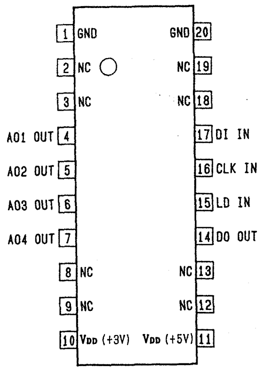

A1 1
A0 2
3 GND
4 V- (-5V)
5 NC
6 NC
IN0 7
14 V OUT
13 -IN
V+ (+5V) 12
11 IN3
10 IN2
NC 9
8 IN1


12
+V
7 IN0
8 IN1
10 IN2
11 IN3
V OUT 14
2 A0
1 A1
-IN 13
GND
-V
3
4

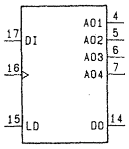

V+
12
IN3
IN2
IN1
IN0
A1
A0
+
-
14 V OUT
13 -IN
4
V-

MB88351PFV (FUJITSU) FLAT PACKAGE

C-MOS 12-BIT D/A CONVERTER WITH OPERATIONAL AMPLIFIER
– TOP VIEW –



1 GND
2 NC
3 NC
AO1 OUT 4
AO2 OUT 5
AO3 OUT 6
AO4 OUT 7
8 NC
9 NC
10 VDD (+3V)
GND 20
NC 19
NC 18
17 DI IN
16 CLK IN
15 LD IN
14 DO OUT
NC 13
NC 12
VDD (+5V) 11



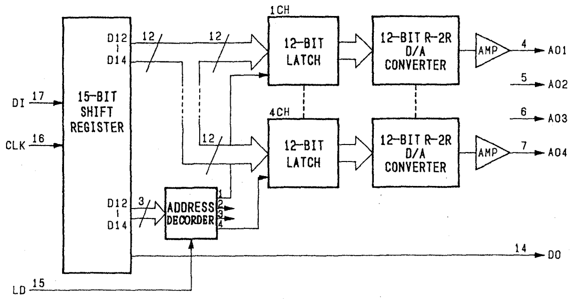
17 DI
16
15 LD
AO1 4
AO2 5
AO3 6
AO4 7
DO 14

INPUT
CLK ; SHIFT CLOCK
DI ; SERIAL DATA
LD ; DECODER AND D/A REGISTER TO LOAD

OUTPUT
AO1 – AO4 ; ANALOG DATA
DO ; MBS BIT DATA IN 15-BIT SHIFT REGISTER

D12	D13	D14	ADDRESS SELECT
0	0	0	DON'T CARE
0	0	1	AO1 SELECT
0	1	0	AO2 SELECT
0	1	1	AO3 SELECT
1	0	0	AO4 SELECT
1	0	1	DON'T CARE
1	1	0	DON'T CARE
1	1	1	DON'T CARE

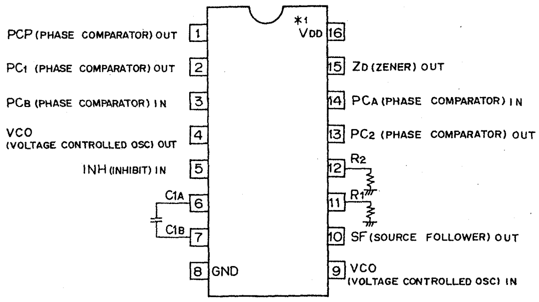
0 ; LOW LEVEL
1 ; HIGH LEVEL



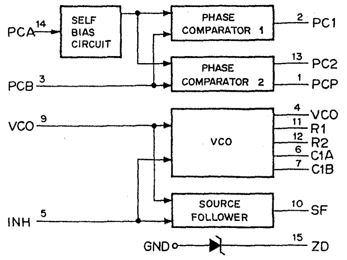
DI 17
CLK 16
LD 15
15-BIT SHIFT REGISTER
D12
D14
12
1CH
4CH
12-BIT LATCH
12-BIT R-2R D/A CONVERTER
AMP
3
ADDRESS DECORDER
1
2
3
4
4 AO1
5 AO2
6 AO3
7 AO4
14 DO

MC14046BF (MOTOROLA) FLAT PACKAGE

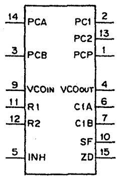
C-MOS PHASE LOCKED LOOP
– TOP VIEW –



PCP (PHASE COMPARATOR) OUT 1
PC1 (PHASE COMPARATOR) OUT 2
PCB (PHASE COMPARATOR) IN 3
VCO (VOLTAGE CONTROLLED OSC) OUT 4
INH (INHIBIT) IN 5
C1A 6
C1B 7
8 GND
*1 VDD 16
15 ZD (ZENER) OUT
14 PCA (PHASE COMPARATOR) IN
13 PC2 (PHASE COMPARATOR) OUT
12 R2
11 R1
10 SF (SOURCE FOLLOWER) OUT
9 VCO (VOLTAGE CONTROLLED OSC) IN



PCA 14
SELF BIAS CIRCUIT
PHASE COMPARATOR 1
PHASE COMPARATOR 2
PCB 3
VCO 9
VCO
INH 5
SOURCE FOLLOWER
GND
2 PC1
13 PC2
1 PCP
4 VCO
11 R1
12 R2
6 C1A
7 C1B
10 SF
15 ZD



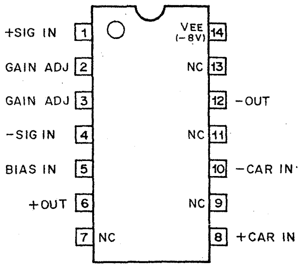
14 PCA
3 PCB
9 VCOIN
11 R1
12 R2
5 INH
PC1 2
PC2 13
PCP 1
VCOOUT 4
C1A 6
C1B 7
SF 10
ZD 15

*1

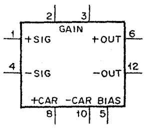
TYPE	VDD
CD4046BE HD14046BP MC14046BCP MC14046BF TC4046BP	+3 to +8V
MC74HC4046AN	+2 to +6V

MC1496M (MOTOROLA) FLAT PACKAGE
NJM1496M (JRC) FLAT PACKAGE

BALANCED MODULATOR/DEMODULATOR
– TOP VIEW –



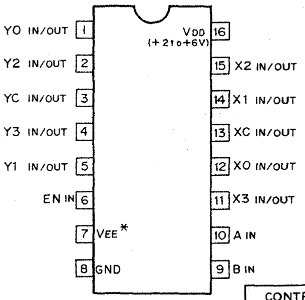
+SIG IN 1
GAIN ADJ 2
GAIN ADJ 3
–SIG IN 4
BIAS IN 5
+OUT 6
7 NC
VEE (–8V) 14
NC 13
12 –OUT
NC 11
10 –CAR IN
NC 9
8 +CAR IN



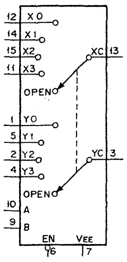
2
3
GAIN
1 +SIG
4 –SIG
+OUT 6
–OUT 12
+CAR –CAR BIAS
8
10
5

MC74HC4052F (MOTOROLA) FLAT PACKAGE

C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –



Y0 IN/OUT 1
Y2 IN/OUT 2
YC IN/OUT 3
Y3 IN/OUT 4
Y1 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+2 to +6V) 16
15 X2 IN/OUT
14 X1 IN/OUT
13 XC IN/OUT
12 X0 IN/OUT
11 X3 IN/OUT
10 A IN
9 B IN



12 X0
14 X1
15 X2
11 X3
XC 13
OPEN
1 Y0
5 Y1
2 Y2
4 Y3
YC 3
OPEN
10 A
9 B
EN 6
VEE 7

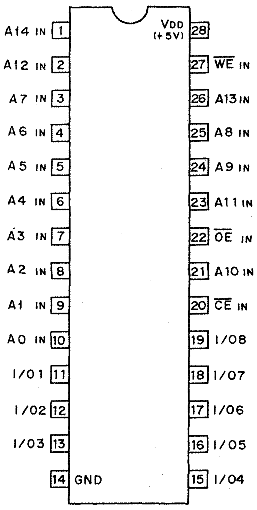
VEE*; VDD−VEE = +3 to +12V

CONTROL INPUTS			"ON" CHANNEL
EN	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	OPEN

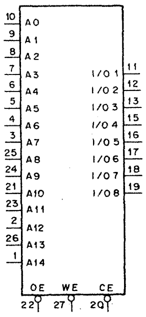
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

MS62256CLL-10FC (MOSEL) FLAT PACKAGE

C-MOS 256K (32768x8)-BIT STATIC RAM
– TOP VIEW –



A14 IN 1
A12 IN 2
A7 IN 3
A6 IN 4
A5 IN 5
A4 IN 6
A3 IN 7
A2 IN 8
A1 IN 9
A0 IN 10
I/O1 11
I/O2 12
I/O3 13
14 GND
VDD (+5V) 28
27 WE IN
26 A13 IN
25 A8 IN
24 A9 IN
23 A11 IN
22 OE IN
21 A10 IN
20 CE IN
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4

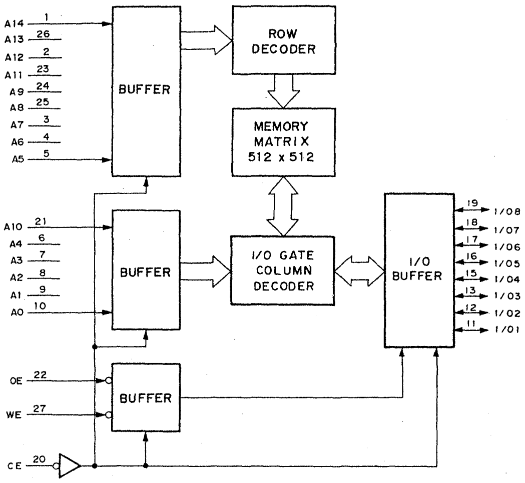


10 A0
9 A1
8 A2
7 A3
6 A4
5 A5
4 A6
3 A7
25 A8
24 A9
21 A10
23 A11
2 A12
26 A13
1 A14
I/O1 11
I/O2 12
I/O3 13
I/O4 15
I/O5 16
I/O6 17
I/O7 18
I/O8 19
OE 22
WE 27
CE 20

A0 – A14 ; ADDRESS INPUTS
CE ; CHIP ENABLE INPUT
I/O1 – I/O8 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

CE	OE	WE	MODE	I/O TERMINAL
1	X	X	NOT SELECT	HIGH IMPEDANCE
0	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	0	1	READ	OUTPUT DATA
0	X	0	WRITE	INPUT DATA

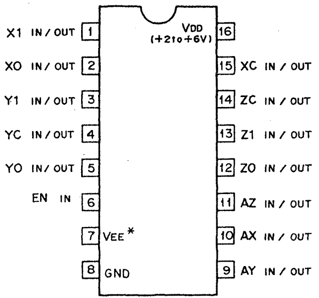
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE



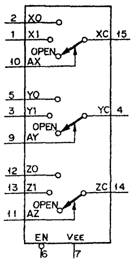
A14 1
A13 26
A12 2
A11 23
A9 24
A8 25
A7 3
A6 4
A5 5
BUFFER
ROW DECODER
MEMORY MATRIX 512 x 512
A10 21
A4 6
A3 7
A2 8
A1 9
A0 10
BUFFER
I/O GATE COLUMN DECODER
I/O BUFFER
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4
13 I/O3
12 I/O2
11 I/O1
OE 22
WE 27
BUFFER
CE 20

MC74HC4053F (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –



X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+2 to +6V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT



2 X0
1 X1
XC 15
OPEN
10 AX
5 Y0
3 Y1
YC 4
OPEN
9 AY
12 Z0
13 Z1
ZC 14
OPEN
11 AZ
EN 6
VEE 7

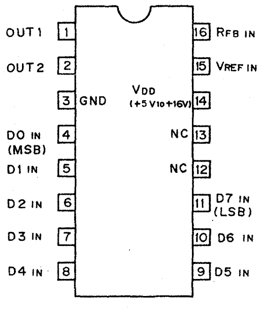
VEE*; VDD−VEE = +3 to +12V
VEE ≦ GND

CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

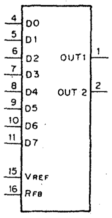
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

MP7523JS (MICRO POWER SYSTEMS) FLAT PACKAGE

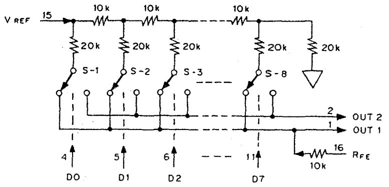
C-MOS 8-BIT D/A CONVERTER
– TOP VIEW –



OUT1 1
OUT2 2
3 GND
D0 IN (MSB) 4
D1 IN 5
D2 IN 6
D3 IN 7
D4 IN 8
16 RFB IN
15 VREF IN
VDD (+5V to +16V) 14
NC 13
NC 12
11 D7 IN (LSB)
10 D6 IN
9 D5 IN



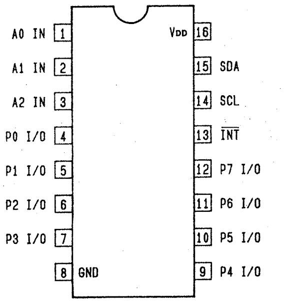
4 D0
5 D1
6 D2
7 D3
8 D4
9 D5
10 D6
11 D7
15 VREF
16 RFB
OUT1 1
OUT 2 2

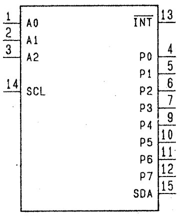


VREF 15
10k
10k
10k
20k
20k
20k
20k
20k
S-1
S-2
S-3
S-8
2 OUT 2
1 OUT 1
16 RFE
10k
4 D0
5 D1
6 D2
11 D7

PCF8574T (PHILIPS)

C-MOS REMOTE 8-BIT I/O EXPANDER
- TOP VIEW -

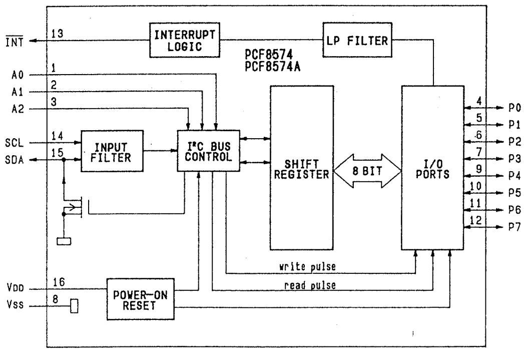

A0 IN 1
A1 IN 2
A2 IN 3
P0 I/O 4
P1 I/O 5
P2 I/O 6
P3 I/O 7
8 GND
VDD 16
15 SDA
14 SCL
13 $\overline{INT}$
12 P7 I/O
11 P6 I/O
10 P5 I/O
9 P4 I/O


1 A0
2 A1
3 A2
14 SCL
$\overline{INT}$ 13
P0 4
P1 5
P2 6
P3 7
P4 9
P5 10
P6 11
P7 12
SDA 15

INPUT
A0–A2 ; ADDRESS INPUT
SCL ; SYSTEM CLOCK LINE

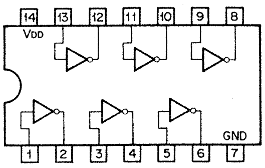
OUTPUT
$\overline{INT}$; INTERRUPT OUTPUT
SDA ; SERIAL DATA LINE

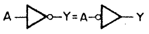
INPUT/OUTPUT
P0–P7 ; 8 BITS QUASI-BIDIRECTIONAL I/O PORT


$\overline{INT}$
A0
A1
A2
SCL
SDA
VDD
Vss
13
1
2
3
14
15
16
8
INTERRUPT LOGIC
LP FILTER
PCF8574
PCF8574A
INPUT FILTER
I²C BUS CONTROL
SHIFT REGISTER
8 BIT
I/O PORTS
POWER-ON RESET
write pulse
read pulse
4 P0
5 P1
6 P2
7 P3
9 P4
10 P5
11 P6
12 P7

SN74HC04ANS (TI) FLAT PACKAGE
TC74AC04F (TOSHIBA) FLAT PACKAGE

C-MOS HEX INVERTERS
- TOP VIEW -


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



Y = $\overline{A}$

A	Y
0	1
1	0

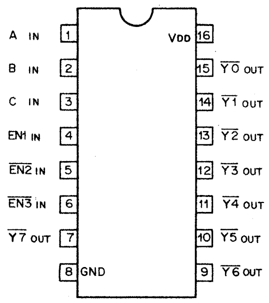
0:LOW LEVEL
1:HIGH LEVEL

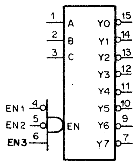
NOTE :

TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC138APW (TI)

C-MOS 3-TO-8 LINE DECODER/DEMULTIPLEXER
- TOP VIEW -


A IN 1
B IN 2
C IN 3
$\overline{EN1}$ IN 4
$\overline{EN2}$ IN 5
EN3 IN 6
$\overline{Y7}$ OUT 7
8 GND
VDD 16
15 $\overline{Y0}$ OUT
14 $\overline{Y1}$ OUT
13 $\overline{Y2}$ OUT
12 $\overline{Y3}$ OUT
11 $\overline{Y4}$ OUT
10 $\overline{Y5}$ OUT
9 $\overline{Y6}$ OUT


1 A
2 B
3 C
EN1 4
EN2 5
EN3 6
EN
Y0 15
Y1 14
Y2 13
Y3 12
Y4 11
Y5 10
Y6 9
Y7 7

INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

EN = $\overline{EN1} \cdot \overline{EN2} \cdot EN3$

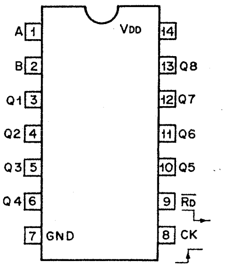
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

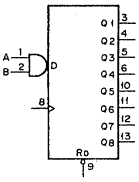
NOTE :

TYPE	VDD
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC164ANS (TI) FLAT PACKAGE

C-MOS 8-BIT SERIAL-IN/PARALLEL-OUT SHIFT REGISTER
- TOP VIEW -


A 1
B 2
Q1 3
Q2 4
Q3 5
Q4 6
7 GND
VDD 14
13 Q8
12 Q7
11 Q6
10 Q5
9 $\overline{RD}$
8 CK

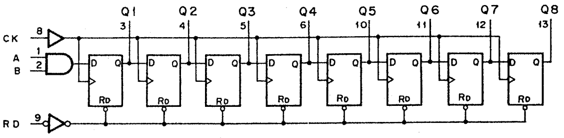

A 1
B 2
D
8
RD
9
Q1 3
Q2 4
Q3 5
Q4 6
Q5 10
Q6 11
Q7 12
Q8 13

INPUTS				OUTPUTS			
RD	CK	A	B	Q1	Q2	----	Q8
0	X	X	X	0	0	0	0
1	0	X	X	Q1o	Q2o	----	Q8o
1	↑	1	1	1	Q1n	----	Q7n
1	↑	0	X	0	Q1n	----	Q7n
1	↑	X	0	0	Q1n	----	Q7n

0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE

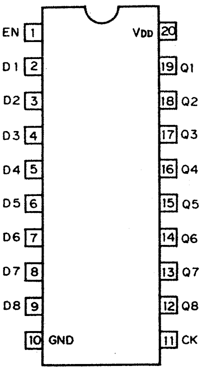
NOTE :

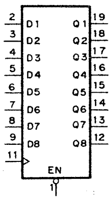
TYPE	VDD
TC74AC164 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V


Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
3
4
5
6
10
11
12
13
CK 8
A 1
B 2
RD 9
D Q
RD

SN74HC574APW (TI)

C-MOS 3-STATE D-TYPE EDGE-TRIGGERED FLIP-FLOP
- TOP VIEW -

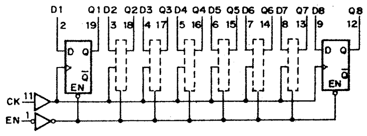

EN 1
D1 2
D2 3
D3 4
D4 5
D5 6
D6 7
D7 8
D8 9
10 GND
VDD 20
19 Q1
18 Q2
17 Q3
16 Q4
15 Q5
14 Q6
13 Q7
12 Q8
11 CK


2 D1
3 D2
4 D3
5 D4
6 D5
7 D6
8 D7
9 D8
11
EN
1
Q1 19
Q2 18
Q3 17
Q4 16
Q5 15
Q6 14
Q7 13
Q8 12

EACH FLIP-FLOP

INPUTS			OUT
EN	CK	D	Q
0	↑	1	1
0	↑	0	0
0	↓	X	Qo
1	X	X	HI–Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI - Z ; HIGH IMPEDANCE
Qo ; NO CHANGE

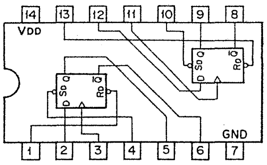

D1 2
Q1 19
D2 3
Q2 18
D3 4
Q3 17
D4 5
Q4 16
D5 6
Q5 15
D6 7
Q6 14
D7 8
Q7 13
D8 9
Q8 12
D Q
$\overline{Q}$
EN
CK 11
EN 1

NOTE :

TYPE	VDD
74AC/74HC	+ 2 to + 6V
74ACT/74HCT	+ 5V
TC74AC574F	+ 2 to + 5.5V

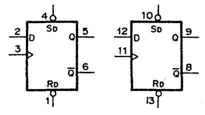
SN74HC74ANS (TI) FLAT PACKAGE

C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET／RESET
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7
SD
Q
Q̄
RD
D

INPUTS				OUTPUTS	
$\overline{S_D}$	$\overline{R_D}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Q}$n

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

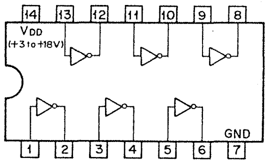

4
SD
2
D
Q
5
3
Q̄
6
RD
1
10
SD
12
D
Q
9
11
Q̄
8
RD
13

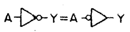
NOTE :

TYPE	VDD
TC74HCT74AF	+5V
TC74AC74 TYPE	+2 to +5.5V
74ACT74 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

TC4069UBF (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER
– TOP VIEW –


14
13
12
11
10
9
8
VDD
(+3 to +18V)
GND
1
2
3
4
5
6
7



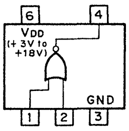
$Y = \overline{A}$

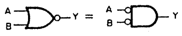
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4S01F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NOR GATE
– TOP VIEW –


6
4
VDD
(+3V to +18V)
GND
1
2
3



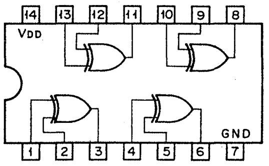
$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

SN74HC86ANS (TI) FLAT PACKAGE
TC74AC86F (TOSHIBA) FLAT PACKAGE

C-MOS QUAD EXCLUSIVE OR GATES
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7

$Y = \overline{A} \cdot B + A \cdot \overline{B}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

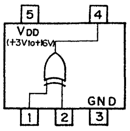
0; LOW LEVEL
1; HIGH LEVEL

NOTE :

TYPE	VDD
TC74AC86 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

TC4S30F (TOSHIBA) FLAT PACKAGE

C-MOS EXCLUSIVE OR GATE
– TOP VIEW –


5
4
VDD
(+3V to +18V)
GND
1
2
3

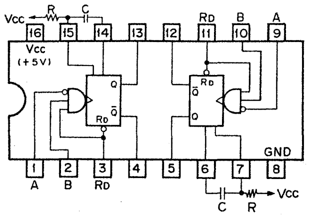
$Y = \overline{A} \cdot B + A \cdot \overline{B}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

SN74LS123NS (TI) FLAT PACKAGE

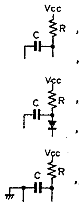
TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR WITH DIRECT RESET
– TOP VIEW –


Vcc
R
C
RD
B
A
16
15
14
13
12
11
10
9
Vcc
(+5V)
Q
Q̄
RD
GND
1
2
3
4
5
6
7
8
A
B
RD
Vcc
C
R

INPUTS			OUTPUTS	
RD	A	B	Q	$\overline{Q}$
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⎍	⊔
1	↓	1	⎍	⊔
↑	0	1	⎍	⊔

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

OUTPUT PULSE WIDTH


Vcc
C
R
Vcc
C
R
Vcc
C
R

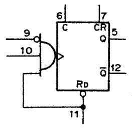
'123 ; $T_W = 0.28 \left(1 + \frac{700}{R}\right) CR$

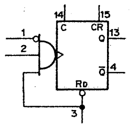
'L123; $T_W = 0.33 \left(1 + \frac{700}{R}\right) CR$

'123 ; $T_W = 0.25 \left(1 + \frac{700}{R}\right) CR$

'L123; $T_W = 0.29 \left(1 + \frac{700}{R}\right) CR$

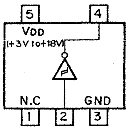
'LS123; $T_W = 0.45 CR$

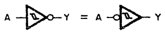

6
7
C
CR
5
Q
9
10
Q̄
12
RD
11


14
15
C
CR
13
Q
1
2
Q̄
4
RD
3

TC4S584F (TOSHIBA) FLAT PACKAGE

C-MOS SCHMITT TRIGGER INVERTER
– TOP VIEW –


5
4
VDD
(+3V to +18V)
N.C
GND
1
2
3



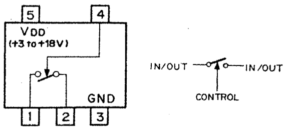
$Y = \overline{A}$

A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4S66F (TOSHIBA)

C-MOS BILATERAL ANALOG SWITCH
– TOP VIEW –

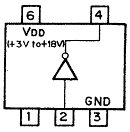

5
4
VDD
(+3 to +18V)
GND
1
2
3
IN/OUT
IN/OUT
CONTROL

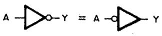
CONTROL	SWITCH
0	OFF
1	ON

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4S69F (TOSHIBA) FLAT PACKAGE
TC4SU69F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER BUFFER
– TOP VIEW –


6
4
VDD
(+3V to +18V)
GND
1
2
3



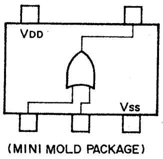
$Y = \overline{A}$

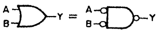
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4S71F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT OR GATE
– TOP VIEW –


VDD
Vss
(MINI MOLD PACKAGE)



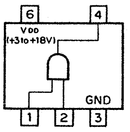
$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

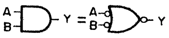
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4S81F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE
– TOP VIEW –


6
4
VDD
(+3 to +18V)
GND
1
2
3



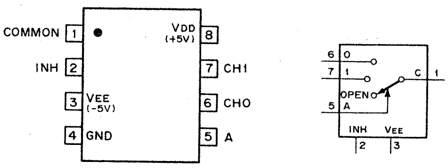
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 : LOW LEVEL
1 : HIGH LEVEL

TC4W53F (TOSHIBA) FLAT PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –

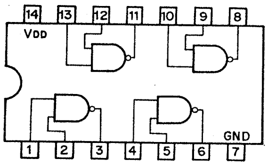

COMMON 1
INH 2
3 VEE (-5V)
4 GND
VDD (+5V) 8
7 CH1
6 CHO
5 A
6 0
7 1
OPEN
5 A
C 1
INH
VEE
2
3

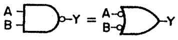
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

CONT. INPUT		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	OPEN

TC74AC00F (TOSHIBA) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATES
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

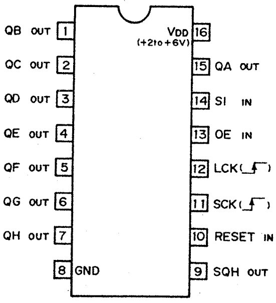
0 ; LOW LEVEL
1 ; HIGH LEVEL

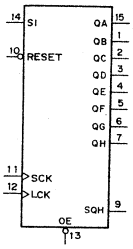
NOTE :

TYPE	V_{DD}
TC74AC00 TYPE	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

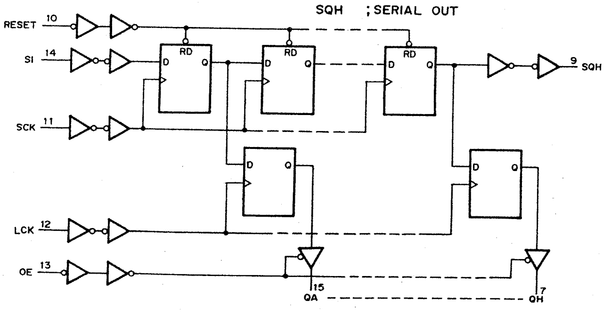
TC74HC595AF (TOSHIBA) FLAT PACKAGE

C-MOS 8-BIT SERIAL-INPUT/SERIAL- OR PARALLEL-OUTPUT SHIFT REGISTER WITH LATCHED 3-STATE OUTPUT
– TOP VIEW –


QB OUT 1
QC OUT 2
QD OUT 3
QE OUT 4
QF OUT 5
QG OUT 6
QH OUT 7
8 GND
VDD (+2 to +6V) 16
15 QA OUT
14 SI IN
13 OE IN
12 LCK IN
11 SCK IN
10 RESET IN
9 SQH OUT

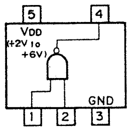

14 SI
10 RESET
11 SCK
12 LCK
QA 15
QB 1
QC 2
QD 3
QE 4
QF 5
QG 6
QH 7
SQH 9
OE 13

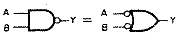
OE ; OUTPUT ENABLE INPUT
LCK ; LATCH CLOCK INPUT
SCK ; SHIFT CLOCK INPUT
RESET ; SHIFT-REGISTER RESET INPUT
SI ; SERIAL IN
QA–QH ; PARALLEL OUTPUTS
SQH ; SERIAL OUT


RESET 10
SI 14
SCK 11
LCK 12
OE 13
RD
D
Q
9 SQH
15 QA
7 QH

TC7S00F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NAND GATE
– TOP VIEW –


5
4
VDD
(+2V to +6V)
GND
1
2
3



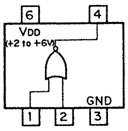
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

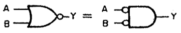
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7S02F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NOR GATE
– TOP VIEW –


6
4
VDD
(+2 to +6V)
GND
1
2
3



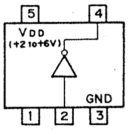
$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

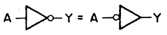
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7S04F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER
– TOP VIEW –


5
4
VDD
(+2 to +6V)
GND
1
2
3



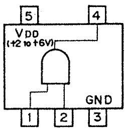
$Y = \overline{A}$

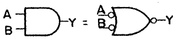
A	Y
0	1
1	0

0; LOW LEVEL
1 ; HIGH LEVEL

TC7S08F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE
– TOP VIEW –


5
4
VDD
(+2 to +6V)
GND
1
2
3



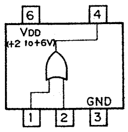
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

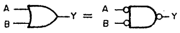
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0; LOW LEVEL
1 ; HIGH LEVEL

TC7S32F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT OR GATE
– TOP VIEW –


6
4
VDD
(+2 to +6V)
GND
1
2
3



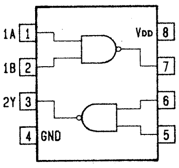
$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

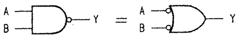
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W00F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NAND GATE
– TOP VIEW –


1A 1
1B 2
2Y 3
4 GND
VDD 8
7 1Y
6 2B
5 2A



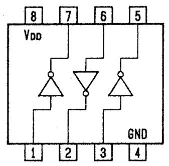
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

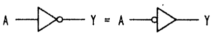
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W04F

C-MOS HEX INVERTERS
– TOP VIEW –


8
7
6
5
VDD
GND
1
2
3
4



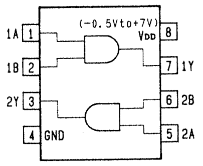
$Y = \overline{A}$

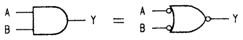
A	Y
0	1
1	0

0;LOW LEVEL
1;HIGH LEVEL

TC7W08F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE
– TOP VIEW –


(−0.5V to +7V)
1A 1
1B 2
2Y 3
4 GND
VDD 8
7 1Y
6 2B
5 2A



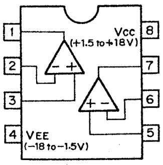
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

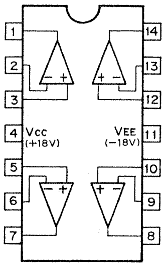
TL032CPS (TI) FLAT PACKAGE
TL062CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(JFET INPUT)
– TOP VIEW –

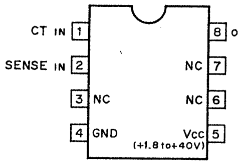

1
2
3
4
VEE
(−18 to −1.5V)
8
VCC
(+1.5 to +18V)
7
6
5
−
+
+
−

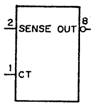
TL064CDB (TI)
TL064CPW (TI)

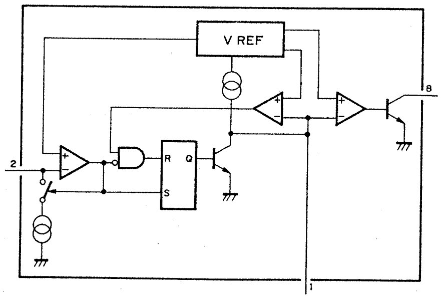
OPERATIONAL AMPLIFIER
(J FET-INPUT)
- TOP VIEW -


1
2
3
4 Vcc (+18V)
5
6
7
14
13
12
VEE (-18V) 11
10
9
8

TL7700CPS (TI) FLAT PACKAGE
VARIABLE SUPPLY VOLTAGE SUPERVISOR
- TOP VIEW -

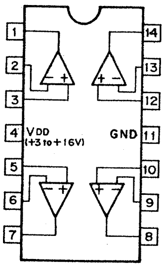

CT IN 1
SENSE IN 2
3 NC
4 GND
8 OUT
NC 7
NC 6
Vcc (+1.8 to+40V) 5


2 SENSE OUT 8
1 CT


V REF
8
2
R
Q
S
1

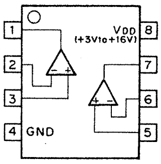
TLC27L4CDB (TI)
TLC27L4CPW (TI)
TLC27M4CPW (TI)

C-MOS OPERATIONAL AMPLIFIER
- TOP VIEW -

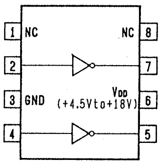

1
2
3
4 VDD (+3 to+16V)
5
6
7
14
13
12
GND 11
10
9
8

TLC27L2CPS (TI) FLAT PACKAGE

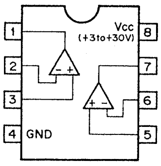
OPERATIONAL AMPLIFIER
- TOP VIEW -


1
2
3
4 GND
VDD (+3V to+16V) 8
7
6
5

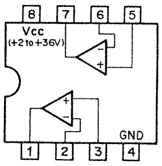
TSC426COA (TELEDYNE) FLAT PACKAGE
C-MOS HIGH SPEED DUAL DRIVER
- TOP VIEW -


1 NC
2
3 GND
4
NC 8
7
VDD (+4.5Vto+18V) 6
5

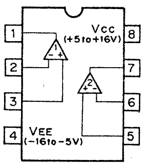
UPC358G2 (NEC) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIERS
- TOP VIEW -


1
2
3
4 GND
Vcc (+3to+30V) 8
7
6
5

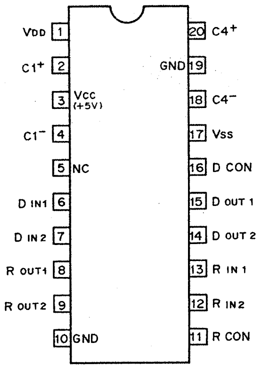
UPC393G2 (NEC) FLAT PACKAGE
DUAL VOLTAGE COMPARATORS
- TOP VIEW -

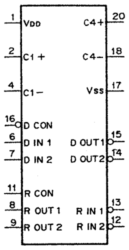

8
7
6
5
Vcc (+2to+36V)
GND
1
2
3
4

UPC814G2-1 (NEC) FLAT PACKAGE
TTL-DUAL OPERATIONAL AMPLIFIER
- TOP VIEW -

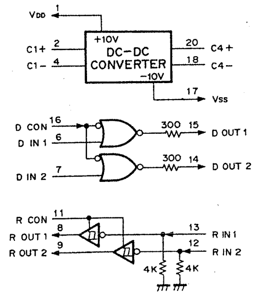

1
2
3
4 VEE (-16to-5V)
Vcc (+5to+16V) 8
7
6
5
1
2

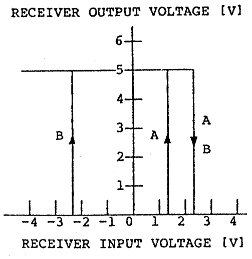
UPD4711AGS (NEC) FLAT PACKAGE
C-MOS RS-232C LINE DRIVER/RECIVER
– TOP VIEW –


VDD 1
C1+ 2
3 Vcc (+5V)
C1− 4
5 NC
D IN1 6
D IN2 7
R OUT1 8
R OUT2 9
10 GND
20 C4+
GND 19
18 C4−
17 Vss
16 D CON
15 D OUT 1
14 D OUT 2
13 R IN 1
12 R IN2
11 R CON


1 VDD
2 C1 +
4 C1−
16 D CON
6 D IN 1
7 D IN 2
11 R CON
8 R OUT 1
9 R OUT 2
C4+ 20
C4− 18
Vss 17
D OUT1 15
D OUT2 14
R IN 1 13
R IN 2 12

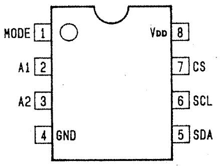
C1+,C1-; CONNECTED CAPACITOR 1
C4+,C4-; CONNECTED CAPACITOR 4
DCON ; DRIVER OUTPUT CONTROL INPUT
(HIGH; ENABLE DOUT)
DINn ; DRIVERS INPUT
DOUTn ; DRIVERS OUTPUT
RCON ; RECEIVER THRESHOLD CONTROL INPUT
RINn ; RECEIVERS INPUT
ROUTn ; RECEIVERS OUTPUT
VDD ; OUTPUT VOLTAGE, +10V
VSS ; OUTPUT VOLTAGE, -10V

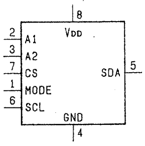

VDD
1
+10V
DC−DC
CONVERTER
−10V
C1+ 2
C1− 4
20 C4+
18 C4−
17 Vss
D CON 16
D IN 1 6
D IN 2 7
300 15 D OUT 1
300 14 D OUT 2
R CON 11
R OUT 1 8
R OUT 2 9
13 R IN 1
12 R IN 2
4K
4K



A; RCOM = LOW LEVEL
B; RCOM = HIGH LEVEL

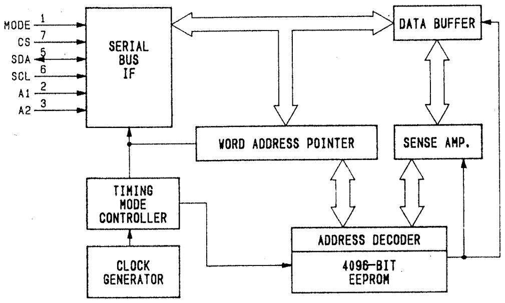
UPD6254GS-BA1 (NEC)
4096-BIT EEPROM
– TOP VIEW –


MODE 1
A1 2
A2 3
4 GND
VDD 8
7 CS
6 SCL
5 SDA


8
VDD
2 A1
3 A2
7 CS
1 MODE
6 SCL
SDA 5
GND
4

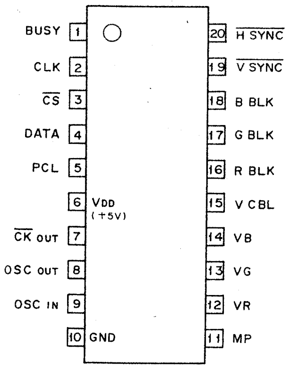
INPUT
A1 – A2 ; ADDRESS DATA
CS ; CHIP SELECT
MODE ; INTERFACE SELECT
SCL ; SERIAL CLOCK

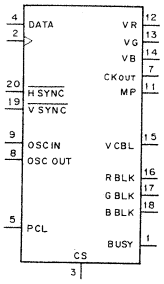
INPUT/OUTPUT
SDA ; SERIAL DATA


MODE 1
CS 7
SDA 5
SCL 6
A1 2
A2 3
SERIAL BUS IF
DATA BUFFER
WORD ADDRESS POINTER
SENSE AMP.
TIMING MODE CONTROLLER
CLOCK GENERATOR
ADDRESS DECODER
4096-BIT EEPROM

UPD6453GT (NEC) FLAT PACKAGE

C-MOS ON-SCREEN CHARACTER DISPLAY
– TOP VIEW –


BUSY 1
CLK 2
$\overline{CS}$ 3
DATA 4
PCL 5
6 VDD (+5V)
$\overline{CK}$ OUT 7
OSC OUT 8
OSC IN 9
10 GND
20 $\overline{\text{H SYNC}}$
19 $\overline{\text{V SYNC}}$
18 B BLK
17 G BLK
16 R BLK
15 V CBL
14 VB
13 VG
12 VR
11 MP

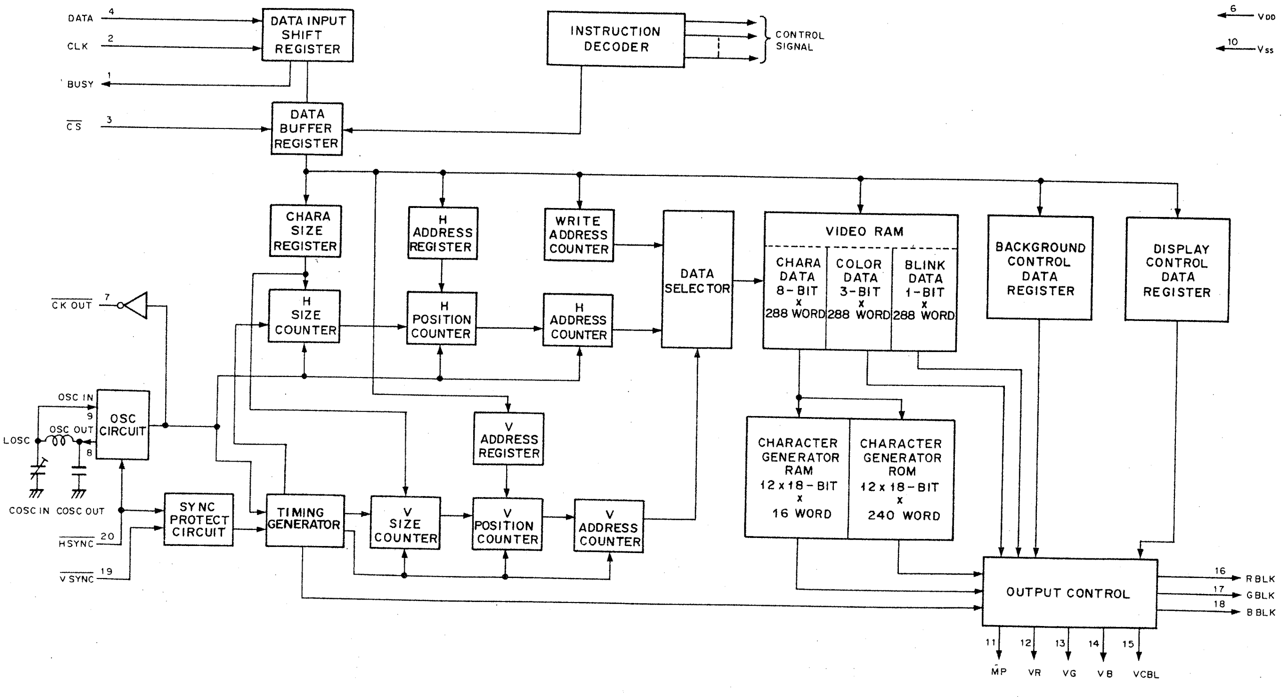

4 DATA
2
20 $\overline{\text{H SYNC}}$
19 $\overline{\text{V SYNC}}$
9 OSC IN
8 OSC OUT
5 PCL
CS 3
VR 12
VG 13
VB 14
CKOUT 7
MP 11
VCBL 15
RBLK 16
GBLK 17
BBLK 18
BUSY 1

INPUT

CLK	: CLOCK
$\overline{CS}$	: CHIP SELECT
DATA	: SERIAL DATA
$\overline{\text{H SYNC}}$	: HORIZONTAL SYNC
OSC IN	: OSCILLATOR IN
PCL	: POWER ON CLEAR
$\overline{\text{V SYNC}}$	: VERTICAL SYNC

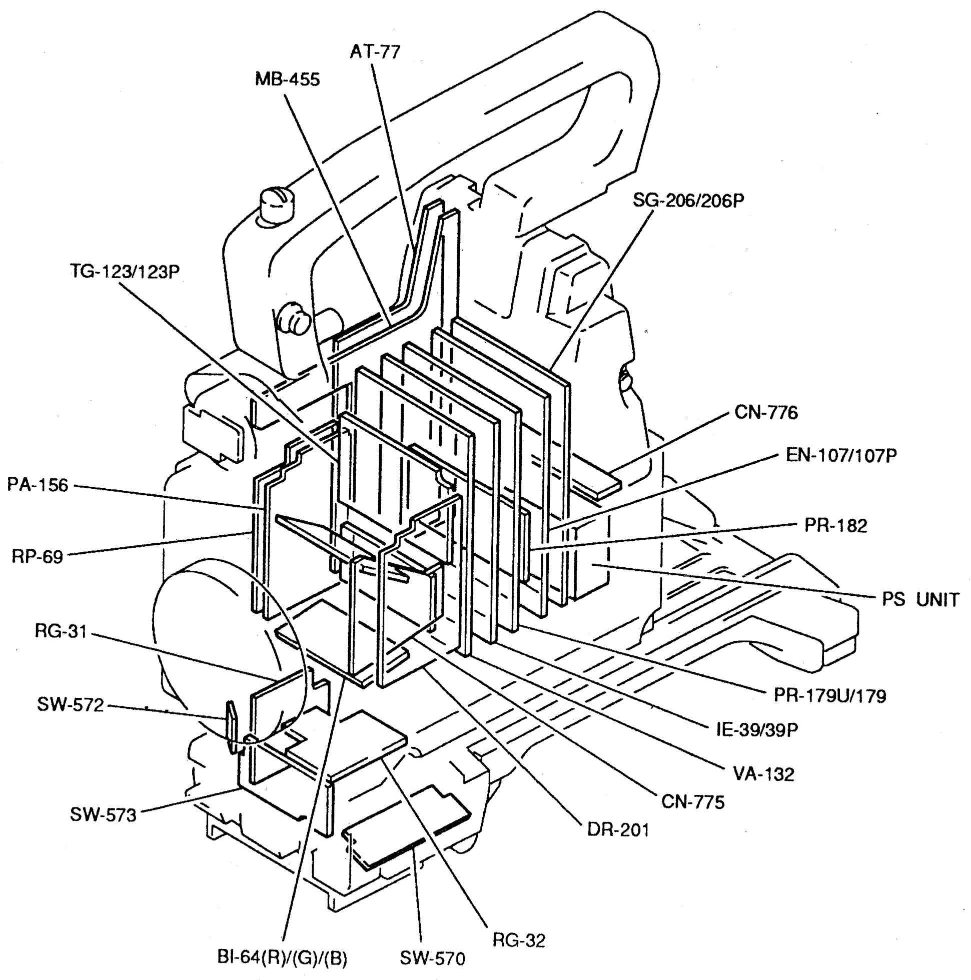
OUTPUT

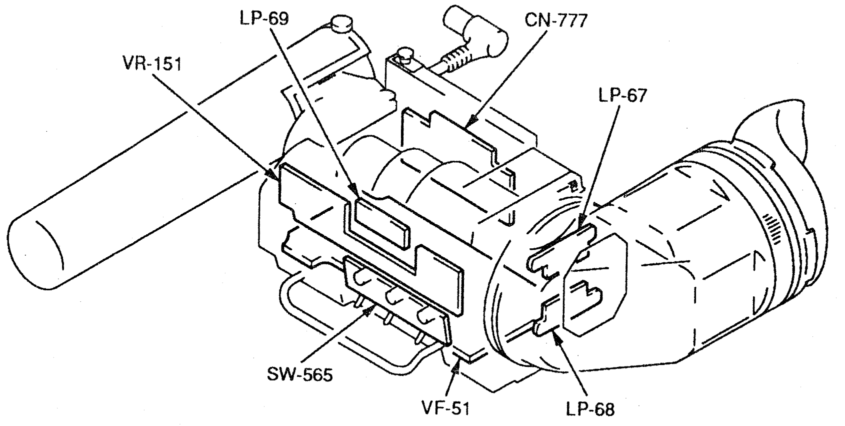
B_{BLK}, R_{BLK}, G_{BLK}	: B, R, G, BLANKING
BUSY	: BUSY OUT
$\overline{CK}$ OUT	: CLOCK
MP	: MASK PULSE
OSC OUT	: OSCILLATOR OUT
V_R, V_G, V_B	: R, G, B, CHARACTER DATA
V_{CBL}	: VIDEO CUT BLANKING


DATA 4
CLK 2
BUSY 1
$\overline{CS}$ 3
DATA INPUT SHIFT REGISTER
INSTRUCTION DECODER
CONTROL SIGNAL
6 VDD
10 Vss
DATA BUFFER REGISTER
CHARA SIZE REGISTER
H ADDRESS REGISTER
WRITE ADDRESS COUNTER
DATA SELECTOR
VIDEO RAM
CHARA DATA 8-BIT x 288 WORD
COLOR DATA 3-BIT x 288 WORD
BLINK DATA 1-BIT x 288 WORD
BACKGROUND CONTROL DATA REGISTER
DISPLAY CONTROL DATA REGISTER
$\overline{CK}$ OUT 7
H SIZE COUNTER
H POSITION COUNTER
H ADDRESS COUNTER
OSC IN 9
OSC OUT 8
LOSC
OSC CIRCUIT
V ADDRESS REGISTER
CHARACTER GENERATOR RAM 12x18-BIT x 16 WORD
CHARACTER GENERATOR ROM 12x18-BIT x 240 WORD
COSC IN
COSC OUT
$\overline{\text{HSYNC}}$ 20
$\overline{\text{V SYNC}}$ 19
SYNC PROTECT CIRCUIT
TIMING GENERATOR
V SIZE COUNTER
V POSITION COUNTER
V ADDRESS COUNTER
OUTPUT CONTROL
16 RBLK
17 GBLK
18 BBLK
11 MP
12 VR
13 VG
14 VB
15 VCBL

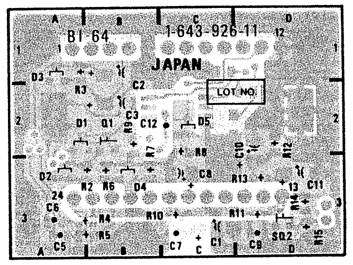
SECTION C
SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS

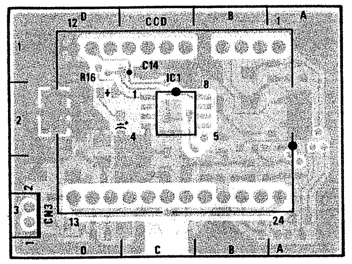
BOARD LAYOUT


AT-77
MB-455
SG-206/206P
TG-123/123P
CN-776
EN-107/107P
PA-156
PR-182
RP-69
PS UNIT
RG-31
PR-179U/179
SW-572
IE-39/39P
VA-132
CN-775
SW-573
DR-201
RG-32
BI-64(R)/(G)/(B)
SW-570


LP-69
CN-777
VR-151
LP-67
SW-565
VF-51
LP-68

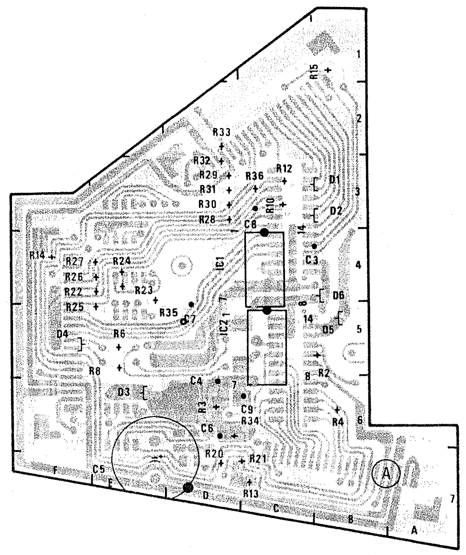
BI-64 (R) / (G) / (B) BOARD

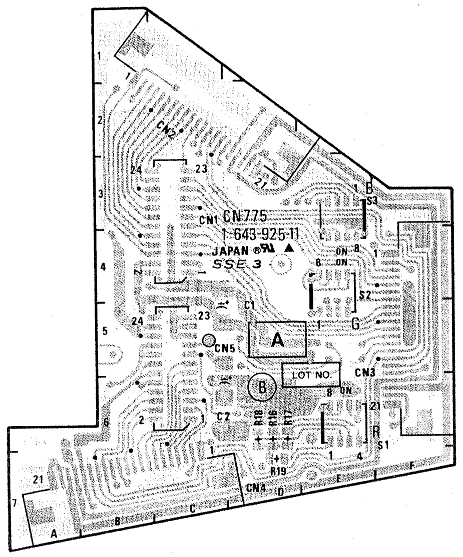

BI 64
1-643-926-11
JAPAN
LOT NO.



1-643-926-11 SOLDERING SIDE

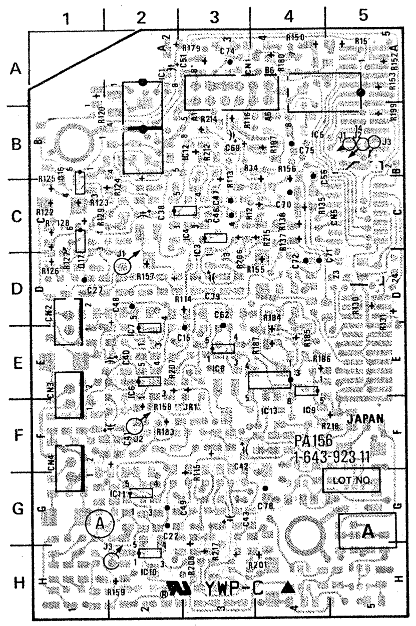
CN-775 BOARD

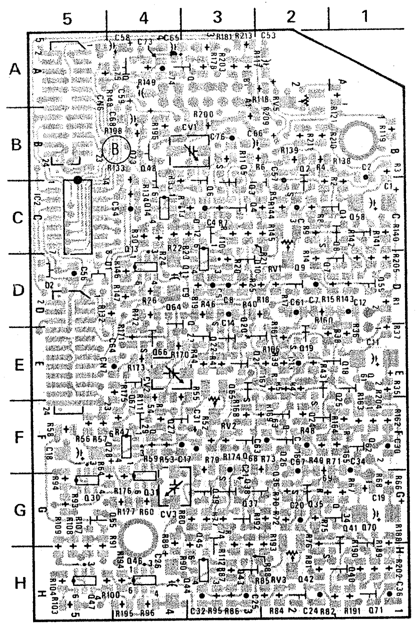



CN775
1-643-925-11
JAPAN
SSE 3
CN5
A
B
LOT NO.
CN3
CN4

1-643-925-11 SOLDERING SIDE

PA-156 BOARD


PA156
1-643-923-11
JAPAN
LOT NO.
YWP-C
A

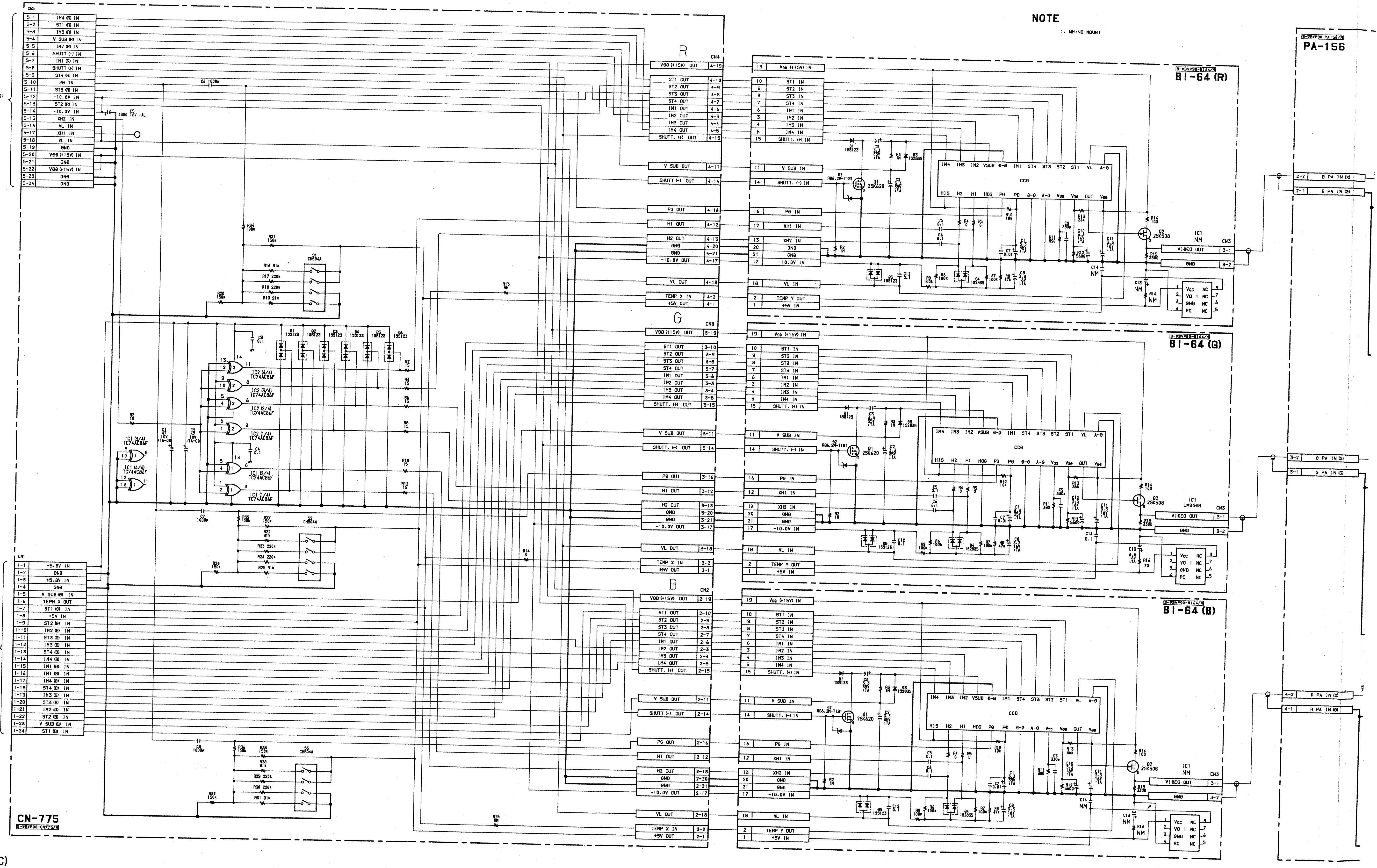


1-643-923-11 SOLDERING SIDE

PA - 156 (1 - 643 - 923 - 11)	
CN1	A - 3
CN2	D - 1
CN3	E - 1
CN4	F - 1
CN5	C - 5
CN6	A - 5
CN7	E - 5
CV1	B - 3
CV2	E - 4
CV3	G - 4
D1	D - 5
D2	D - 5
IC1	A - 2
IC2	C - 5
IC3	C - 3
IC4	C - 3
IC5	B - 4
IC6	E - 2
IC7	E - 2
IC8	E - 3
IC9	F - 4
IC11	G - 2
IC12	B - 3
IC13	F - 4
Q1	C - 1
Q2	B - 2
Q3	C - 3
Q4	C - 3
Q5	B - 3
Q6	C - 2
Q7	D - 2
Q8	C - 1
Q9	D - 2
Q10	D - 3
Q11	D - 3
Q12	C - 3
Q13	C - 4
Q14	C - 4
Q16	B - 1
Q17	D - 1
Q18	E - 1
Q19	E - 2
Q20	D - 3
Q21	E - 3
Q22	E - 3
Q23	E - 3
Q24	F - 2
Q25	F - 1
Q26	F - 2
Q27	F - 4
Q28	F - 5
Q29	F - 4
Q30	G - 5
Q31	G - 4
Q34	G - 1
Q35	G - 2
Q36	G - 2
Q37	G - 3
Q38	G - 3
Q39	G - 3
Q40	H - 1
Q41	G - 1
Q42	H - 2
Q43	H - 3
Q44	H - 4
Q45	G - 3
Q46	H - 4
Q47	H - 5
Q48	B - 4
Q55	G - 5
Q58	C - 1
Q59	D - 1
Q61	E - 1
Q62	F - 1
Q63	F - 2
Q64	D - 4
Q65	E - 3
Q66	E - 4
Q67	F - 4
Q68	F - 3
Q70	G - 1
Q71	H - 1
Q73	B - 4
Q74	A - 3
Q75	A - 4
RV1	D - 2
RV2	F - 3
RV3	H - 2
RV5	A - 2

CCD BLOCK (1/2)

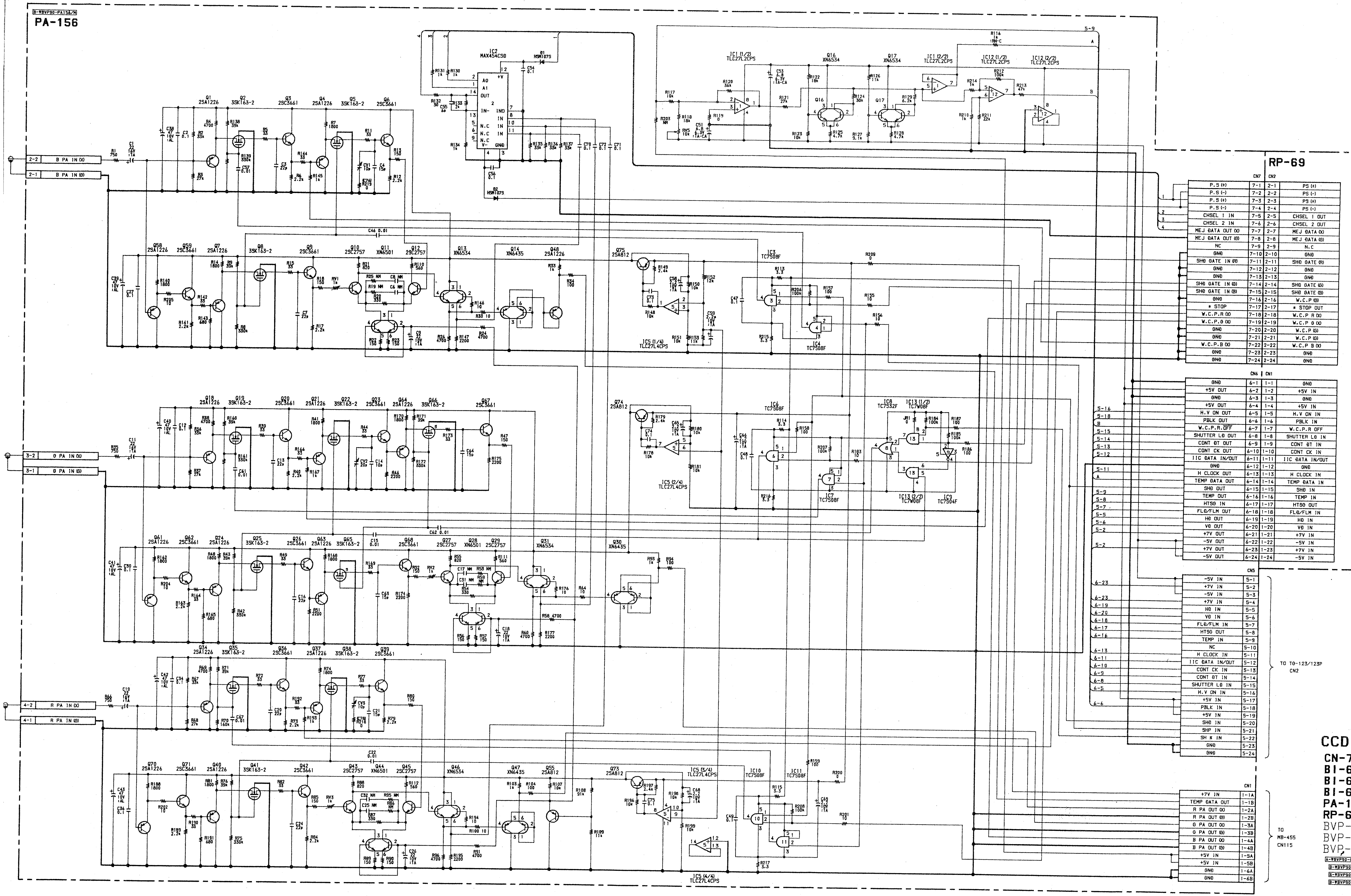
BI-64 (R) / (G) / (B) BOARD
CN-775 BOARD
PA-156 BOARD


NOTE
1. NM:NO MOUNT
TO BR-201 CN2
TO BR-201 CN1
CN5
CN1
R
G
B
CN4
CN3
CN2
CCD
BI-64 (R)
BI-64 (G)
BI-64 (B)
PA-156
CN-775
VIDEO OUT
2SK620
2SK508
LM350M
TC74AC86F
CH504A
1SS123
1SS285
Vcc
GND
B PA IN (X)
G PA IN (X)
R PA IN (X)

BVP-90 (J, UC)
BVP-90P (EK)

C-3 C-3

A | B | C | D | E | F | G | H |


B-▼BVP90-PA156/M
PA-156
2-2 B PA IN (X)
2-1 B PA IN (G)
3-2 G PA IN (X)
3-1 G PA IN (G)
4-2 R PA IN (X)
4-1 R PA IN (G)
IC2 MAX454CSO
IC1 (1/2) TLC27L2CPS
IC1 (2/2) TLC27L2CPS
IC12 (1/2) TLC27L2CPS
IC12 (2/2) TLC27L2CPS
Q16 XN6534
Q17 XN6534
IC3 TC7S08F
IC4 TC7S08F
IC5 (1/4) TLC27L4CPS
IC5 (2/4) TLC27L4CPS
IC5 (3/4) TLC27L4CPS
IC5 (4/4) TLC27L4CPS
IC6 TC7S08F
IC7 TC7S08F
IC8 TC7S32F
IC9 TC7S04F
IC10 TC7S08F
IC11 TC7S08F
IC13 (1/2) TC7W08F
IC13 (2/2) TC7W08F
Q1 2SA1226
Q2 3SK163-2
Q3 2SC3661
Q4 2SA1226
Q5 3SK163-2
Q6 2SC3661
Q58 2SA1226
Q59 2SC3661
Q7 2SA1226
Q8 3SK163-2
Q9 2SC3661
Q10 2SC2757
Q11 XN6501
Q12 2SC2757
Q13 XN6534
Q14 XN6435
Q48 2SA1226
Q75 2SA812
Q18 2SA1226
Q19 3SK163-2
Q20 2SC3661
Q21 2SA1226
Q22 3SK163-2
Q23 2SC3661
Q64 2SA1226
Q66 3SK163-2
Q67 2SC3661
Q74 2SA812
Q61 2SA1226
Q62 2SC3661
Q24 2SA1226
Q25 3SK163-2
Q26 2SC3661
Q43 2SA1226
Q65 3SK163-2
Q68 2SC3661
Q27 2SC2757
Q28 XN6501
Q29 2SC2757
Q31 XN6534
Q30 XN6435
Q34 2SA1226
Q35 3SK163-2
Q36 2SC3661
Q37 2SA1226
Q38 3SK163-2
Q39 2SC3661
Q70 2SA1226
Q71 2SC3661
Q40 2SA1226
Q41 3SK163-2
Q42 2SC3661
Q43 2SC2757
Q44 XN6501
Q45 2SC2757
Q46 XN6534
Q47 XN6435
Q55 2SA812
Q73 2SA812
RP-69
CN7
CN2
P.S (+) 7-1 2-1 PS (+)
P.S (-) 7-2 2-2 PS (-)
P.S (+) 7-3 2-3 PS (+)
P.S (-) 7-4 2-4 PS (-)
CHSEL 1 IN 7-5 2-5 CHSEL 1 OUT
CHSEL 2 IN 7-6 2-6 CHSEL 2 OUT
MEJ DATA OUT (X) 7-7 2-7 MEJ DATA (X)
MEJ DATA OUT (G) 7-8 2-8 MEJ DATA (G)
NC 7-9 2-9 N.C
GND 7-10 2-10 GND
SHD GATE IN (R) 7-11 2-11 SHD GATE (R)
GND 7-12 2-12 GND
GND 7-13 2-13 GND
SHD GATE IN (G) 7-14 2-14 SHD GATE (G)
SHD GATE IN (B) 7-15 2-15 SHD GATE (B)
GND 7-16 2-16 W.C.P (G)
* STOP 7-17 2-17 * STOP OUT
W.C.P.R (X) 7-18 2-18 W.C.P R (X)
W.C.P.G (X) 7-19 2-19 W.C.P G (X)
GND 7-20 2-20 W.C.P (G)
GND 7-21 2-21 W.C.P (G)
W.C.P.B (X) 7-22 2-22 W.C.P B (X)
GND 7-23 2-23 GND
GND 7-24 2-24 GND
CN6
CN1
GND 6-1 1-1 GND
+5V OUT 6-2 1-2 +5V IN
GND 6-3 1-3 GND
+5V OUT 6-4 1-4 +5V IN
H.V ON OUT 6-5 1-5 H.V ON IN
PBLK OUT 6-6 1-6 PBLK IN
W.C.P.R.OFF 6-7 1-7 W.C.P.R OFF
SHUTTER LD OUT 6-8 1-8 SHUTTER LD IN
CONT DT OUT 6-9 1-9 CONT DT IN
CONT CK OUT 6-10 1-10 CONT CK IN
IIC DATA IN/OUT 6-11 1-11 IIC DATA IN/OUT
GND 6-12 1-12 GND
H CLOCK OUT 6-13 1-13 H CLOCK IN
TEMP DATA OUT 6-14 1-14 TEMP DATA IN
SHD OUT 6-15 1-15 SHD IN
TEMP OUT 6-16 1-16 TEMP IN
HTSG IN 6-17 1-17 HTSG OUT
FLD/FLM OUT 6-18 1-18 FLD/FLM IN
HD OUT 6-19 1-19 HD IN
VD OUT 6-20 1-20 VD IN
+7V OUT 6-21 1-21 +7V IN
-5V OUT 6-22 1-22 -5V IN
+7V OUT 6-23 1-23 +7V IN
-5V OUT 6-24 1-24 -5V IN
CN5
-5V IN 5-1
+7V IN 5-2
-5V IN 5-3
+7V IN 5-4
HD IN 5-5
VD IN 5-6
FLD/FLM IN 5-7
HTSG OUT 5-8
TEMP IN 5-9
NC 5-10
H CLOCK IN 5-11
IIC DATA IN/OUT 5-12
CONT CK IN 5-13
CONT DT IN 5-14
SHUTTER LD IN 5-15
H.V ON IN 5-16
+5V IN 5-17
PBLK IN 5-18
+5V IN 5-19
SHD IN 5-20
SHP IN 5-21
SH π IN 5-22
GND 5-23
GND 5-24
TO TG-123/123P CN2
CN1
+7V IN 1-1A
TEMP DATA OUT 1-1B
R PA OUT (X) 1-2A
R PA OUT (G) 1-2B
G PA OUT (X) 1-3A
G PA OUT (G) 1-3B
B PA OUT (X) 1-4A
B PA OUT (G) 1-4B
+5V IN 1-5A
+5V IN 1-5B
GND 1-6A
GND 1-6B
TO MB-455 CN115

1
2
3
4
5

CCD BLOCK (1/2)

CN-775 BOARD
BI-64 (R) BOARD
BI-64 (G) BOARD
BI-64 (B) BOARD
PA-156 BOARD
RP-69 BOARD
BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)

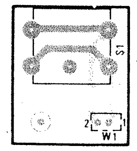
A-▼BVP90-CCDBLOCK1/M
B-▼BVP90-CN775/M
B-▼BVP90-BI64/M
B-▼BVP90-PA156/M

C-3 C-3

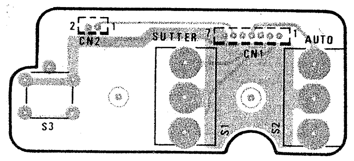
I J K L M N O P

Ser No.10001-10034 (UC)
30001-30020 (J)
40001-40047 (EK)

SW-572 BOARD

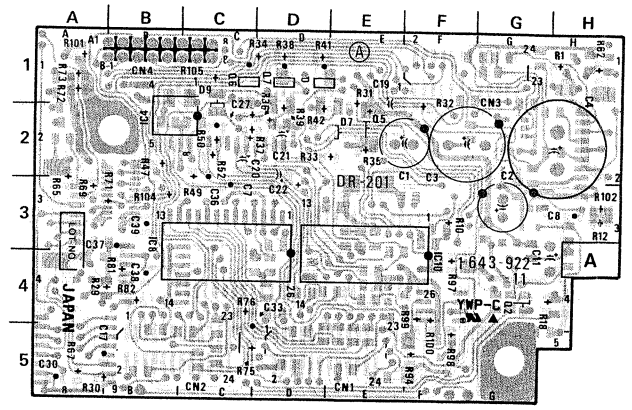


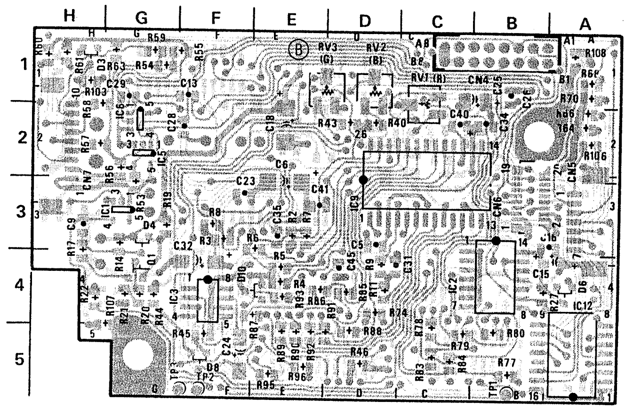
SW-573 BOARD


CN2
SUTTER
CN1
AUTO
S3
S1
S2

DR-201 BOARD

DR-201 (1-643-922-11)	
CN1	E-5
CN2	C-5
CN3	G-1
CN4	B-1
CN5	A-2
CN6	B-3
CN7	H-3
D3	H-1
D4	G-3
D6	A-4
D7	E-2
D8	F-5
D9	C-1
D10	F-4
IC1	G-3
IC2	C-4
IC3	F-4
IC4	B-2
IC5	G-2
IC6	G-2
IC8	B-3
IC9	D-3
IC10	F-4
IC12	A-4
Q1	G-4
Q2	G-4
Q5	E-2
Q6	C-1
Q7	D-1
Q8	D-1
RV1	C-1
RV2	D-1
RV3	E-1

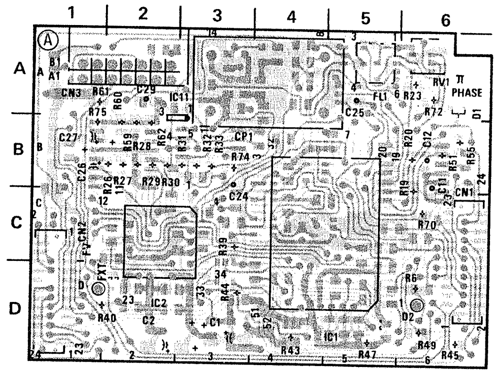

A
B
C
D
E
F
G
H
1
2
3
4
5
DR-201
1-643 922
JAPAN
YWP-C
LOT No.

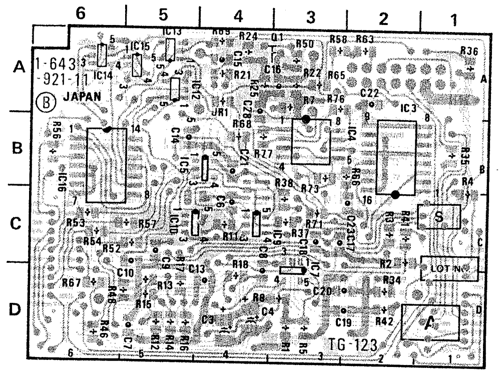

H
G
F
E
D
C
B
A
1
2
3
4
5

1-643-922-11 SOLDERING SIDE

TG-123/123P BOARD

TG-123/123P (1-643-921-11)	
CN1	C-6
CN2	C-1
CN3	A-1
CP1	B-3
D1	A-6
FL1	A-5
IC1	D-5
IC2	D-2
IC3	A-2
IC4	B-2
IC5	B-5
IC7	D-3
IC9	C-3
IC10	C-5
IC11	A-2
IC12	A-5
IC13	A-5
IC14	A-6
IC15	A-5
IC16	B-6
Q1	A-4
RV1	A-6


1
2
3
4
5
6
A
B
C
D
PHASE

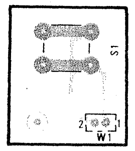

6
5
4
3
2
1
A
B
C
D
1-643-921-11
JAPAN
TG-123
LOT No.

1-643-921-11 SOLDERING SIDE

SW-572 BO

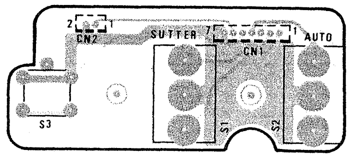
Ser No.10035-	(UC)
30021-	(J)
40048-	(EK)

SW-572 BOARD



1-644-972-12 SOLDERING SIDE

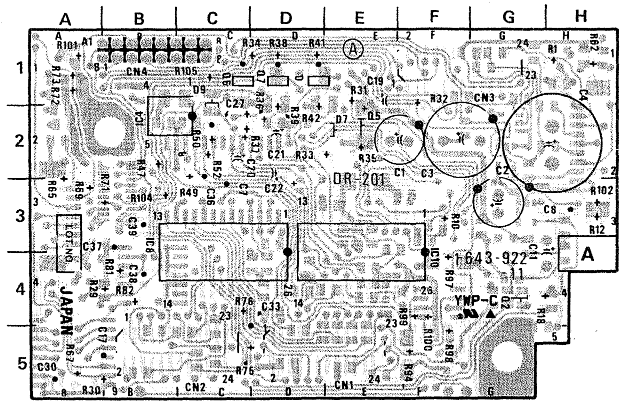
SW-573 BOARD


CN2
SUTTER
CN1
AUTO
S1
S2
S3

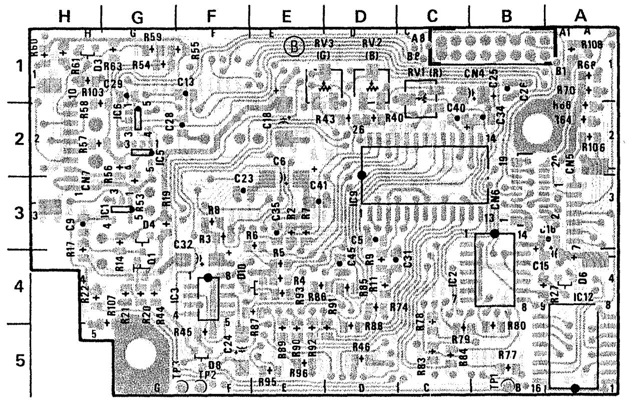
1-644-973-11 SOLDERING SIDE

DR-201 BOARD

DR-201 (1-643-922-11)	
CN1	E-5
CN2	C-5
CN3	G-1
CN4	B-1
CN5	A-2
CN6	B-3
CN7	H-3
D3	H-1
D4	G-3
D6	A-4
D7	E-2
D8	F-5
D9	C-1
D10	F-4
IC1	G-3
IC2	C-4
IC3	F-4
IC4	B-2
IC5	G-2
IC6	G-2
IC8	B-3
IC9	D-3
IC10	F-4
IC12	A-4
Q1	G-4
Q2	G-4
Q5	E-2
Q6	C-1
Q7	D-1
Q8	D-1
RV1	C-1
RV2	D-1
RV3	E-1


A
B
C
D
E
F
G
H
1
2
3
4
5
DR-201
1-643-922
JAPAN
YMP-C
CN1
CN2
CN3
CN4

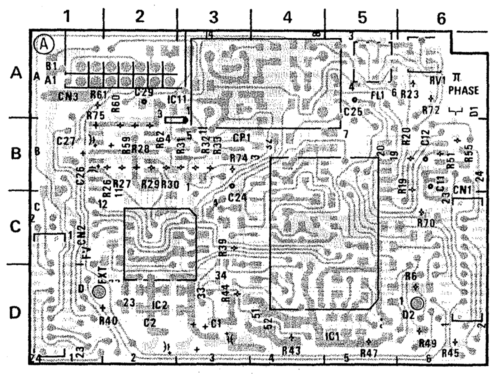
1-643-922-11 SOLDERING SIDE


H
G
F
E
D
C
B
A
1
2
3
4
5
RV3
RV2
RV1
CN4
CN5
CN7

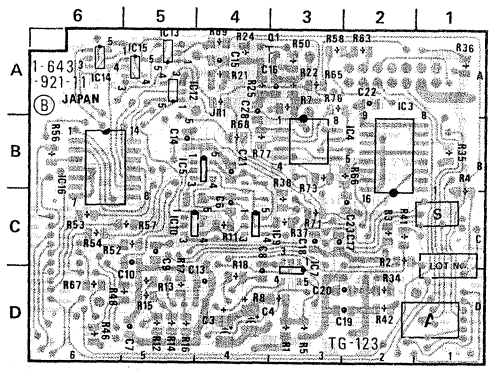
1-643-922-11 SOLDERING SIDE

TG-123/123P BOARD

TG-123/123P (1-643-921-11)	
CN1	C-6
CN2	C-1
CN3	A-1
CP1	B-3
D1	A-6
FL1	A-5
IC1	D-5
IC2	D-2
IC3	A-2
IC4	B-2
IC5	B-5
IC7	D-3
IC9	C-3
IC10	C-5
IC11	A-2
IC12	A-5
IC13	A-5
IC14	A-6
IC15	A-5
IC16	B-6
Q1	A-4
RV1	A-6


1
2
3
4
5
6
A
B
C
D
CN3
CP1
FL1
RV1
PHASE
IC1
IC2

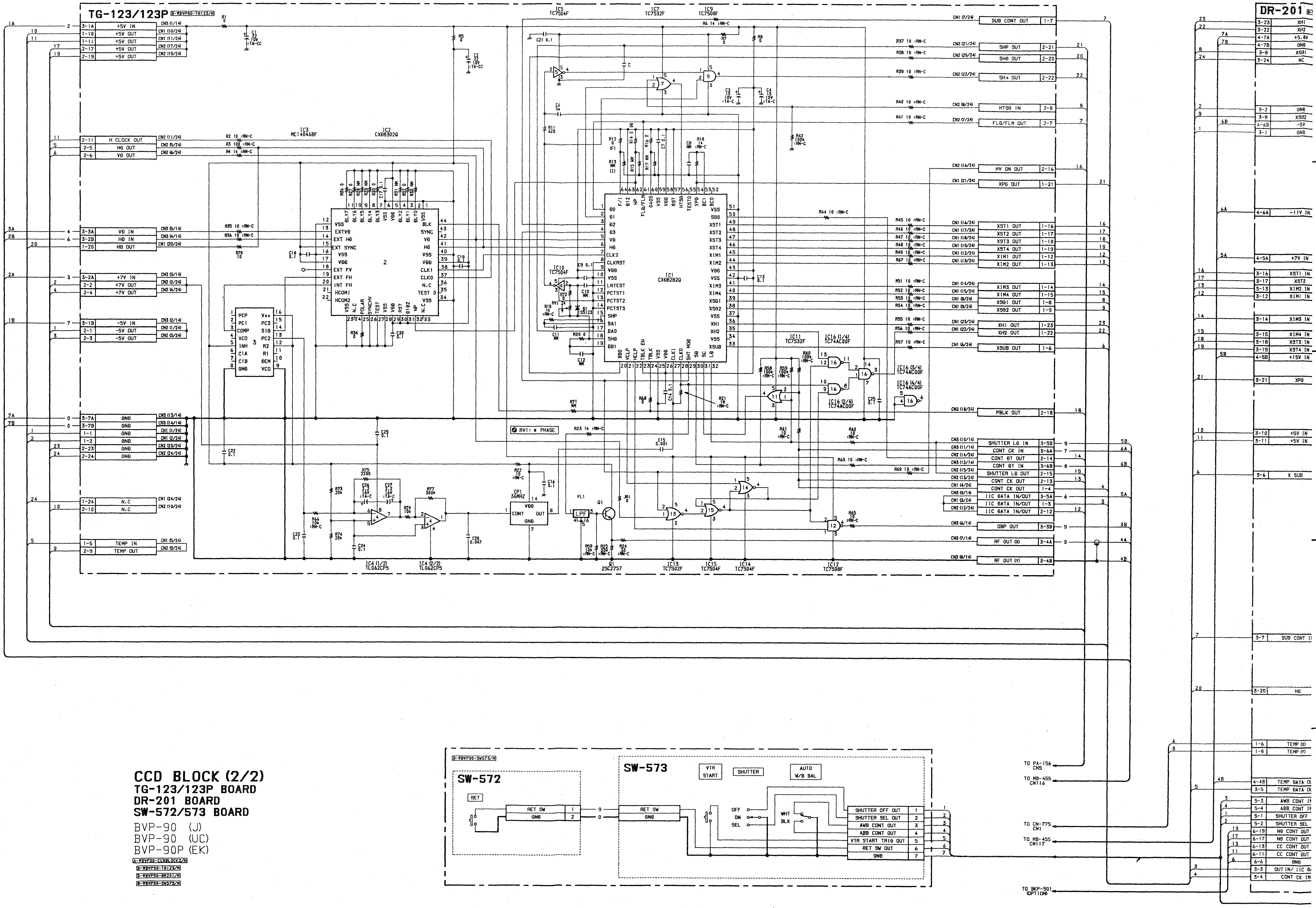
1-643-921-11 SOLDERING SIDE


6
5
4
3
2
1
A
B
C
D
1-643-921-11
JAPAN
LOT NO.
TG-123

1-643-921-11 SOLDERING SIDE

CCD BLOCK (2/2)

DR-201 BOARD
SW-572 BOARD
SW-573 BOARD
TG-123/123P BOARD

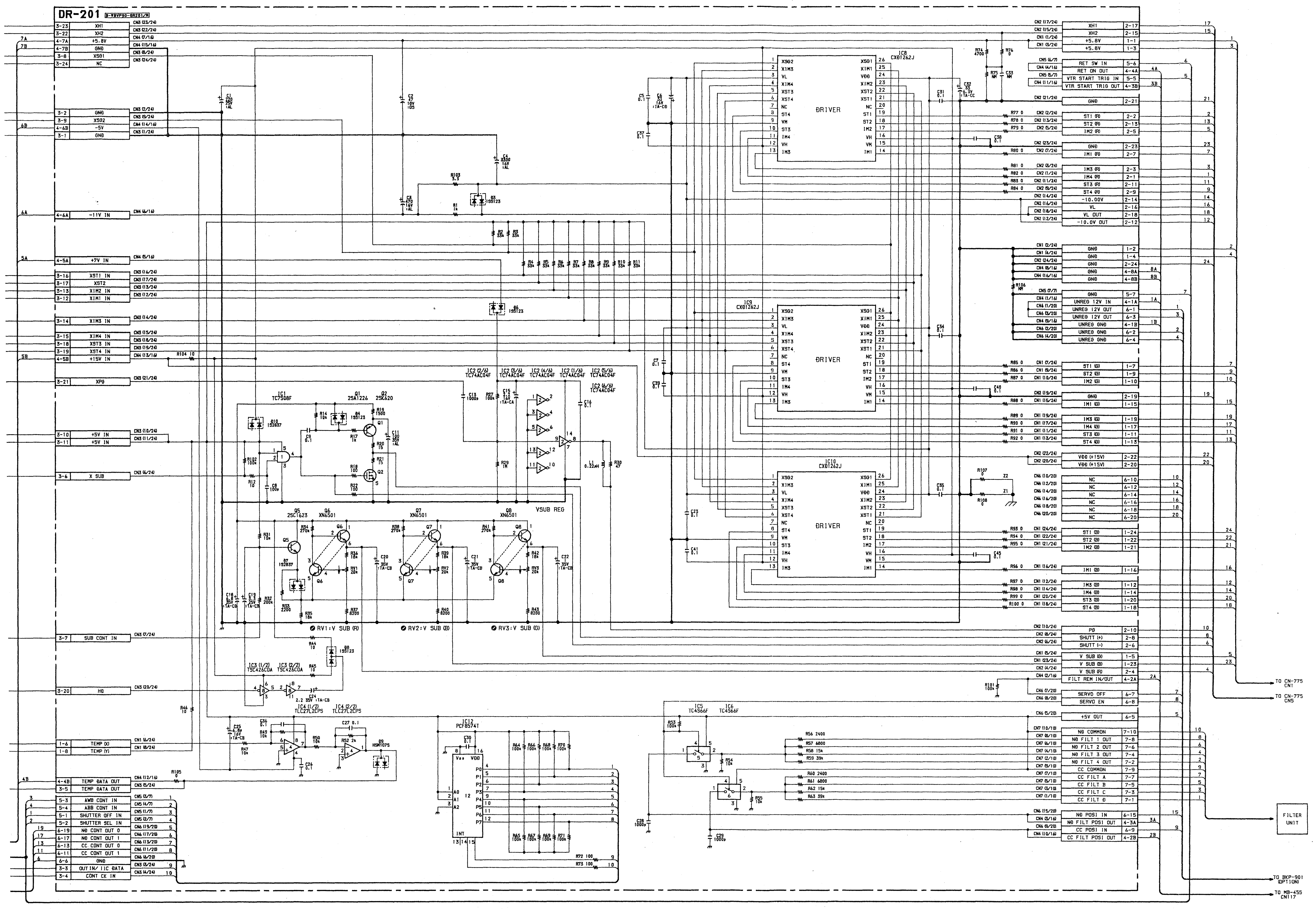

TG-123/123P
DR-201
IC1 CXD8282Q
IC2 CXD8302Q
IC3 MC14046BF
IC4 (1/2) TL062CPS
IC4 (2/2) TL062CPS
IC5 TC7S04F
IC7 TC7S32F
IC9 TC7S08F
IC10 TC7S04F
IC11 TC7S32F
IC12 TC7S08F
IC13 TC7S02F
IC14 TC7S04F
IC15 TC7S04F
IC16 (1/4) TC74AC00F
IC16 (2/4) TC74AC00F
IC16 (3/4) TC74AC00F
IC16 (4/4) TC74AC00F
Q1 2SC2757
CP1 36MHz
FL1
LPF
RV1 : H PHASE
+5V IN
+5V OUT
H CLOCK OUT
HD OUT
VD OUT
VD IN
HD IN
+7V IN
-5V IN
-5V OUT
GND
N.C
TEMP IN
TEMP OUT
SUB CONT OUT
SHP OUT
SHD OUT
SH* OUT
HTSG IN
FLD/FLM OUT
HV ON OUT
XPG OUT
XST1 OUT
XST2 OUT
XST3 OUT
XST4 OUT
XIM1 OUT
XIM2 OUT
XIM3 OUT
XIM4 OUT
XSG1 OUT
XSG2 OUT
XH1 OUT
XH2 OUT
XSUB OUT
PBLK OUT
SHUTTER LD IN
CONT CK IN
CONT DT OUT
CONT DT IN
SHUTTER LD OUT
CONT CK OUT
IIC DATA IN/OUT
OBP OUT
RF OUT (X)
RF OUT (Y)
SW-572
RET
RET SW
SW-573
VTR START
SHUTTER
AUTO W/B BAL
OFF
ON
SEL
WHT
BLK
SHUTTER OFF OUT
SHUTTER SEL OUT
AWB CONT OUT
ABB CONT OUT
VTR START TRIG OUT
RET SW OUT
TO PA-156 CN5
TO MB-455 CN116
TO CN-775 CN1
TO MB-455 CN117
TO BKP-901 (OPTION)

CCD BLOCK (2/2)

TG-123/123P BOARD
DR-201 BOARD
SW-572/573 BOARD

BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)

CCD BLOCK (2/2) DR-201 SW-572 SW-573 TG-123/123P


DR-201
DRIVER
IC8 CX01262J
IC9 CX01262J
IC10 CX01262J
IC1 TC7S08F
Q1 2SA1226
Q2 2SK620
IC2 TC74AC04F
VSUB REG
Q5 2SC1623
Q6 XN6501
Q7 XN6501
Q8 XN6501
RV1:V SUB (R)
RV2:V SUB (B)
RV3:V SUB (G)
IC3 TSC426COA
IC4 TLC27L2CPS
IC5 TC4566F
IC6 TC4566F
IC12 PCF8574T
TO CN-775 CN1
TO CN-775 CN5
FILTER UNIT
TO BKP-901 (OPTION)
TO MB-455 CN117
-11V IN
+7V IN
+15V IN
+5V IN
X SUB
SUB CONT IN
TEMP (X)
TEMP (Y)
TEMP DATA OUTPUT
AWB CONT IN
ABB CONT IN
SHUTTER OFF IN
SHUTTER SEL IN
ND CONT OUT 0
ND CONT OUT 1
CC CONT OUT 0
CC CONT OUT 1
OUTIN/ IIC DATA
CONT CK IN
RET SW IN
RET ON OUT
VTR START TRIG IN
VTR START TRIG OUT
UNREG 12V IN
UNREG 12V OUT
UNREG GND
VDD (+15V)
SHUTT (+)
SHUTT (-)
FILT REM IN/OUT
SERVO OFF
SERVO EN
+5V OUT
ND COMMON
ND FILT 1 OUT
ND FILT 2 OUT
ND FILT 3 OUT
ND FILT 4 OUT
CC COMMON
CC FILT A
CC FILT B
CC FILT C
CC FILT D
ND POSI IN
ND FILT POSI OUT
CC POSI IN
CC FILT POSI OUT
1
2
3
4
5

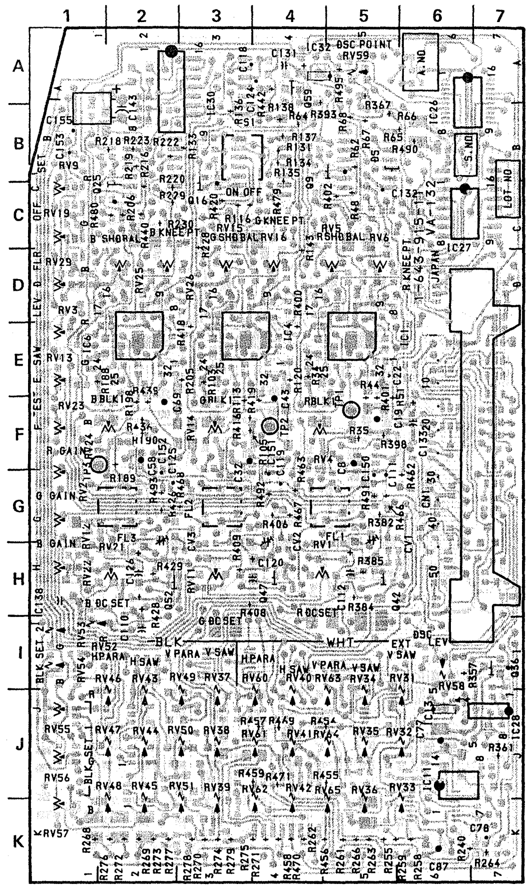
I J K L M N O P

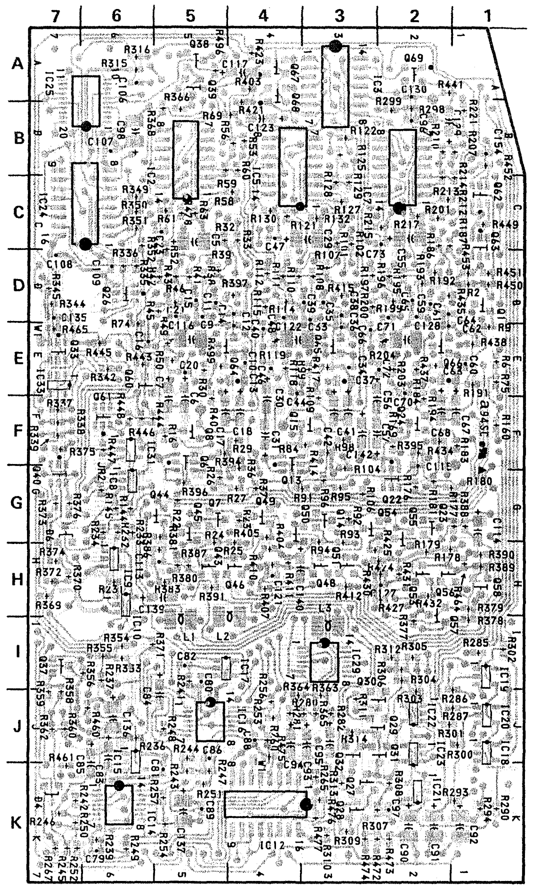
Ser No.10001-10014 (UC)
30001-30020 (J)
40001-40012 (EK)

VA-132 BOARD

VA - 132 (1 - 643 - 915 - 11)

CN1	G - 6
CV1	H - 5
CV2	H - 4
CV3	H - 3
D4	K - 7
D5	B - 5
D6	G - 7
FL1	G - 5
FL2	G - 3
FL3	H - 2
IC1	E - 6
IC2	B - 5
IC3	A - 3
IC4	E - 4
IC5	B - 4
IC6	E - 1
IC7	C - 3
IC8	G - 6
IC9	H - 6
IC10	I - 6
IC11	K - 6
IC12	K - 4
IC13	J - 6
IC14	K - 6
IC15	J - 6
IC16	J - 4
IC17	I - 4
IC18	J - 1
IC19	I - 1
IC20	J - 1
IC21	K - 2
IC22	J - 2
IC23	J - 2
IC24	C - 7
IC25	A - 7
IC26	A - 7
IC27	C - 6
IC28	J - 7
IC29	I - 3
IC30	B - 3
IC31	F - 6
IC32	A - 4
IC33	E - 7
Q1	D - 1
Q6	F - 5
Q7	G - 5
Q8	F - 5
Q9	C - 4
Q13	G - 4
Q14	G - 3
Q15	F - 4
Q16	C - 3
Q22	G - 3
Q23	G - 2
Q24	F - 2
Q25	C - 1
Q26	D - 6
Q27	K - 3
Q28	K - 3
Q29	J - 2
Q30	I - 3
Q31	J - 2
Q32	J - 3
Q33	E - 7
Q36	I - 7
Q37	I - 7
Q38	A - 5
Q39	A - 5
Q40	G - 7
Q42	H - 5
Q43	H - 5
Q44	G - 5
Q45	G - 5
Q46	H - 4
Q47	H - 4
Q48	H - 3
Q49	G - 4
Q50	G - 3
Q51	H - 3
Q52	H - 2
Q53	H - 2
Q54	G - 3
Q55	G - 2
Q56	H - 2
Q57	I - 1
Q58	H - 1
Q59	A - 4
Q60	E - 6
Q61	F - 6
Q62	C - 1
Q63	C - 1
Q64	E - 4
Q65	E - 3
Q66	E - 2
Q67	A - 4
Q68	A - 4
Q69	A - 2
RV1	H - 4
RV2	G - 1
RV3	D - 1
RV4	F - 4
RV5	C - 5
RV6	D - 5
RV9	B - 1
RV11	H - 3
RV12	G - 1
RV13	E - 1
RV14	F - 3
RV15	C - 3
RV16	C - 4
RV19	C - 1
RV21	H - 2
RV22	H - 1
RV23	F - 1
RV24	F - 1
RV25	D - 2
RV26	D - 3
RV29	D - 1
RV31	I - 6
RV32	J - 6
RV33	K - 6
RV34	I - 5
RV35	J - 5
RV36	K - 5
RV37	I - 3
RV38	J - 3
RV39	K - 3
RV40	I - 4
RV41	J - 4
RV42	K - 4
RV43	I - 2
RV44	J - 2
RV45	K - 2
RV46	I - 2
RV47	J - 2
RV48	K - 2
RV49	I - 3
RV50	J - 3
RV51	K - 3
RV52	I - 2
RV53	I - 1
RV54	I - 1
RV55	J - 1
RV56	K - 1
RV57	K - 1
RV58	I - 6
RV59	A - 5
RV60	I - 4
RV61	J - 4
RV62	K - 4
RV63	I - 5
RV64	J - 5
RV65	K - 5
S1	B - 3
TP1	F - 5
TP2	F - 4
TP3	G - 1





1-643-915-11 SOLDERING SIDE

VA - 132 (1 - 643 - 915 - 11)

CN1	G - 6
CV1	H - 5
CV2	H - 4
CV3	H - 3
D4	K - 7
D5	B - 5
D6	G - 7
FL1	G - 5
FL2	G - 3
FL3	H - 2
IC1	E - 6
IC2	B - 5
IC3	A - 3
IC4	E - 4
IC5	B - 4
IC6	E - 1
IC7	C - 3
IC8	G - 6
IC9	H - 6
IC10	I - 6
IC11	K - 6
IC12	K - 4
IC13	J - 6
IC14	K - 6
IC15	J - 6
IC16	J - 4
IC17	I - 4
IC18	J - 1
IC19	I - 1
IC20	J - 1
IC21	K - 2
IC22	J - 2
IC23	J - 2
IC24	C - 7
IC25	A - 7
IC26	A - 7
IC27	C - 6
IC28	J - 7
IC29	I - 3
IC30	B - 3
IC31	F - 6
IC32	A - 4
IC33	E - 7
Q1	D - 1
Q6	F - 5
Q7	G - 5
Q8	F - 5
Q9	C - 4
Q13	G - 4
Q14	G - 3
Q15	F - 4
Q16	C - 3
Q22	G - 3
Q23	G - 2
Q24	F - 2
Q25	C - 1
Q26	D - 6
Q27	K - 3
Q28	K - 3
Q29	J - 2
Q30	I - 3
Q31	J - 2
Q32	J - 3
Q33	E - 7
Q36	I - 7
Q37	I - 7
Q38	A - 5
Q39	A - 5
Q40	G - 7
Q42	H - 5
Q43	H - 5
Q44	G - 5
Q45	G - 5
Q46	H - 4
Q47	H - 4
Q48	H - 3
Q49	G - 4
Q50	G - 3
Q51	H - 3
Q52	H - 2
Q53	H - 2
Q54	G - 3
Q55	G - 2
Q56	H - 2
Q57	I - 1
Q58	H - 1
Q59	A - 4
Q60	E - 6
Q61	F - 6
Q62	C - 1
Q63	C - 1
Q64	E - 4
Q65	E - 3
Q66	E - 2
Q67	A - 4
Q68	A - 4
Q69	A - 2
RV1	H - 4
RV2	G - 1
RV3	D - 1
RV4	F - 4
RV5	C - 5
RV6	D - 5
RV9	B - 1
RV11	H - 3
RV12	G - 1
RV13	E - 1
RV14	F - 3
RV15	C - 3
RV16	C - 4
RV19	C - 1
RV21	H - 2
RV22	H - 1
RV23	F - 1
RV24	F - 1
RV25	D - 2
RV26	D - 3
RV29	D - 1
RV31	I - 6
RV32	J - 6
RV33	K - 6
RV34	I - 5
RV35	J - 5
RV36	K - 5
RV37	I - 3
RV38	J - 3
RV39	K - 3
RV40	I - 4
RV41	J - 4
RV42	K - 4
RV43	I - 2
RV44	J - 2
RV45	K - 2
RV46	I - 2
RV47	J - 2
RV48	K - 2
RV49	I - 3
RV50	J - 3
RV51	K - 3
RV52	I - 2
RV53	I - 1
RV54	I - 1
RV55	J - 1
RV56	K - 1
RV57	K - 1
RV58	I - 6
RV59	A - 5
RV60	I - 4
RV61	J - 4
RV62	K - 4
RV63	I - 5
RV64	J - 5
RV65	K - 5
S1	B - 3
TP1	F - 5
TP2	F - 4
TP3	G - 1

VA-132 BO

VA - 132 (1 - 643 - 915 -

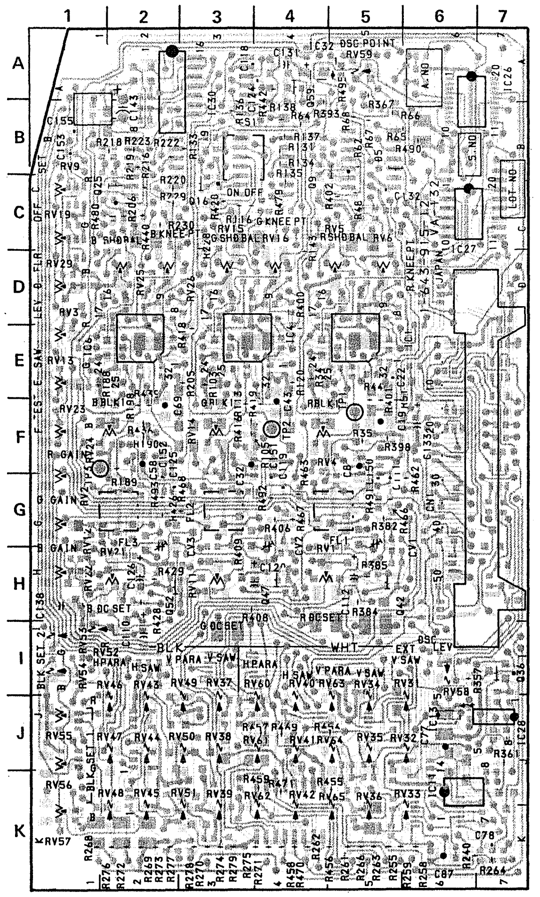
CN1	G - 6
CV1	H - 5
CV2	H - 4
CV3	H - 3
D4	K - 7
D5	B - 5
D6	G - 7
FL1	G - 5
FL2	G - 3
FL3	H - 2
IC1	E - 6
IC2	B - 5
IC3	A - 3
IC4	E - 4
IC5	B - 4
IC6	E - 1
IC7	C - 3
IC8	G - 6
IC9	H - 6
IC10	I - 6
IC11	K - 6
IC12	K - 4
IC13	J - 6
IC14	K - 6
IC15	J - 6
IC16	J - 4
IC17	I - 4
IC18	J - 1
IC19	I - 1
IC20	J - 1
IC21	K - 2
IC22	J - 2
IC23	J - 2
IC24	C - 7
IC25	A - 7
IC26	A - 7
IC27	C - 6
IC28	J - 7
IC29	I - 3
IC30	B - 3
IC31	F - 6
IC32	A - 4
IC33	E - 7
Q1	D - 1
Q6	F - 5
Q7	G - 5
Q8	F - 5
Q9	C - 4
Q13	G - 4
Q14	G - 3
Q15	F - 4
Q16	C - 3
Q22	G - 3
Q23	G - 2
Q24	F - 2
Q25	C - 1
Q26	D - 6
Q27	K - 3
Q28	K - 3
Q29	J - 2
Q30	I - 3
Q31	J - 2
Q32	J - 3
Q33	E - 7
Q36	I - 7
Q37	I - 7
Q38	A - 5
Q39	A - 5
Q40	G - 7
Q42	H - 5
Q43	H - 5
Q44	G - 5
Q45	G - 5
Q46	H - 4
Q47	H - 4
Q48	H - 3
Q49	G - 4
Q50	G - 3

Ser No.10015-10152 (UC)
30021-30105 (J)
40013-40152 (EK)

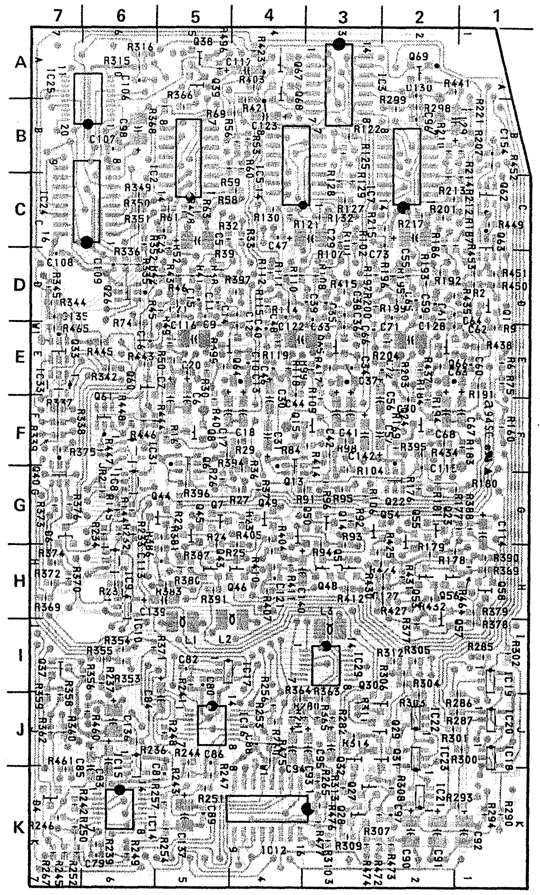
VA-132 BOARD

VA-132 (1-643-915-12)

CN1	G-6
CV1	H-5
CV2	H-4
CV3	H-3
D4	K-7
D5	B-5
D6	G-7
FL1	G-5
FL2	G-3
FL3	H-2
IC1	E-6
IC2	B-5
IC3	A-3
IC4	E-4
IC5	B-4
IC6	E-1
IC7	C-3
IC8	G-6
IC9	H-6
IC10	I-6
IC11	K-6
IC12	K-4
IC13	J-6
IC14	K-6
IC15	J-6
IC16	J-4
IC17	I-4
IC18	J-1
IC19	I-1
IC20	J-1
IC21	K-2
IC22	J-2
IC23	J-2
IC24	C-7
IC25	A-7
IC26	A-7
IC27	C-6
IC28	J-7
IC29	I-3
IC30	B-3
IC31	F-6
IC32	A-4
IC33	E-7
Q1	D-1
Q6	F-5
Q7	G-5
Q8	F-5
Q9	C-4
Q13	G-4
Q14	G-3
Q15	F-4
Q16	C-3
Q22	G-3
Q23	G-2
Q24	F-2
Q25	C-1
Q26	D-6
Q27	K-3
Q28	K-3
Q29	J-2
Q30	I-3
Q31	J-2
Q32	J-3
Q33	E-7
Q36	I-7
Q37	I-7
Q38	A-5
Q39	A-5
Q40	G-7
Q42	H-5
Q43	H-5
Q44	G-5
Q45	G-5
Q46	H-4
Q47	H-4
Q48	H-3
Q49	G-4
Q50	G-3
Q51	H-3
Q52	H-2
Q53	H-2
Q54	G-3
Q55	G-2
Q56	H-2
Q57	I-1
Q58	H-1
Q59	A-4
Q60	E-6
Q61	F-6
Q62	C-1
Q63	C-1
Q64	E-4
Q65	E-3
Q66	E-2
Q67	A-4
Q68	A-4
Q69	A-2
RV1	H-4
RV2	G-1
RV3	D-1
RV4	F-4
RV5	C-5
RV6	D-5
RV9	B-1
RV11	H-3
RV12	G-1
RV13	E-1
RV14	F-3
RV15	C-3
RV16	C-4
RV19	C-1
RV21	H-2
RV22	H-1
RV23	F-1
RV24	F-1
RV25	D-2
RV26	D-3
RV29	D-1
RV31	I-6
RV32	J-6
RV33	K-6
RV34	I-5
RV35	J-5
RV36	K-5
RV37	I-3
RV38	J-3
RV39	K-3
RV40	I-4
RV41	J-4
RV42	K-4
RV43	I-2
RV44	J-2
RV45	K-2
RV46	I-2
RV47	J-2
RV48	K-2
RV49	I-3
RV50	J-3
RV51	K-3
RV52	I-2
RV53	I-1
RV54	I-1
RV55	J-1
RV56	K-1
RV57	K-1
RV58	I-6
RV59	A-5
RV60	I-4
RV61	J-4
RV62	K-4
RV63	I-5
RV64	J-5
RV65	K-5
S1	B-3
TP1	F-5
TP2	F-4
TP3	G-1



1-643-915-12 COMPONENT SIDE



1-643-915-12 SOLDERING SIDE

VA-132 (1-643-915-12)

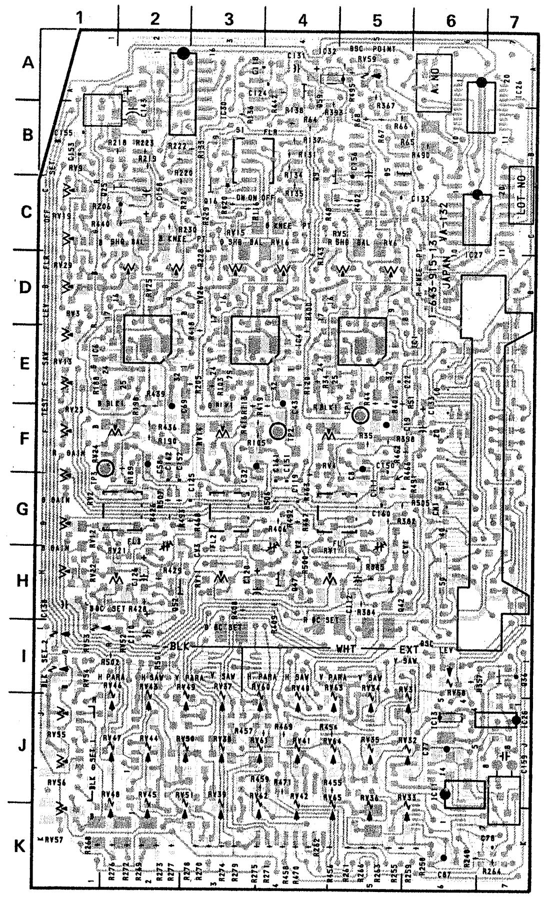
CN1	G-6
CV1	H-5
CV2	H-4
CV3	H-3
D4	K-7
D5	B-5
D6	G-7
FL1	G-5
FL2	G-3
FL3	H-2
IC1	E-6
IC2	B-5
IC3	A-3
IC4	E-4
IC5	B-4
IC6	E-1
IC7	C-3
IC8	G-6
IC9	H-6
IC10	I-6
IC11	K-6
IC12	K-4
IC13	J-6
IC14	K-6
IC15	J-6
IC16	J-4
IC17	I-4
IC18	J-1
IC19	I-1
IC20	J-1
IC21	K-2
IC22	J-2
IC23	J-2
IC24	C-7
IC25	A-7
IC26	A-7
IC27	C-6
IC28	J-7
IC29	I-3
IC30	B-3
IC31	F-6
IC32	A-4
IC33	E-7
Q1	D-1
Q6	F-5
Q7	G-5
Q8	F-5
Q9	C-4
Q13	G-4
Q14	G-3
Q15	F-4
Q16	C-3
Q22	G-3
Q23	G-2
Q24	F-2
Q25	C-1
Q26	D-6
Q27	K-3
Q28	K-3
Q29	J-2
Q30	I-3
Q31	J-2
Q32	J-3
Q33	E-7
Q36	I-7
Q37	I-7
Q38	A-5
Q39	A-5
Q40	G-7
Q42	H-5
Q43	H-5
Q44	G-5
Q45	G-5
Q46	H-4
Q47	H-4
Q48	H-3
Q49	G-4
Q50	G-3
Q51	H-3
Q52	H-2
Q53	H-2
Q54	G-3
Q55	G-2
Q56	H-2
Q57	I-1
Q58	H-1
Q59	A-4
Q60	E-6
Q61	F-6
Q62	C-1
Q63	C-1
Q64	E-4
Q65	E-3
Q66	E-2
Q67	A-4
Q68	A-4
Q69	A-2
RV1	H-4
RV2	G-1
RV3	D-1
RV4	F-4
RV5	C-5
RV6	D-5
RV9	B-1
RV11	H-3
RV12	G-1
RV13	E-1
RV14	F-3
RV15	C-3
RV16	C-4
RV19	C-1
RV21	H-2
RV22	H-1
RV23	F-1
RV24	F-1
RV25	D-2
RV26	D-3
RV29	D-1
RV31	I-6
RV32	J-6
RV33	K-6
RV34	I-5
RV35	J-5
RV36	K-5
RV37	I-3
RV38	J-3
RV39	K-3
RV40	I-4
RV41	J-4
RV42	K-4
RV43	I-2
RV44	J-2
RV45	K-2
RV46	I-2
RV47	J-2
RV48	K-2
RV49	I-3
RV50	J-3
RV51	K-3
RV52	I-2
RV53	I-1
RV54	I-1
RV55	J-1
RV56	K-1
RV57	K-1
RV58	I-6
RV59	A-5
RV60	I-4
RV61	J-4
RV62	K-4
RV63	I-5
RV64	J-5
RV65	K-5
S1	B-3
TP1	F-5
TP2	F-4
TP3	G-1

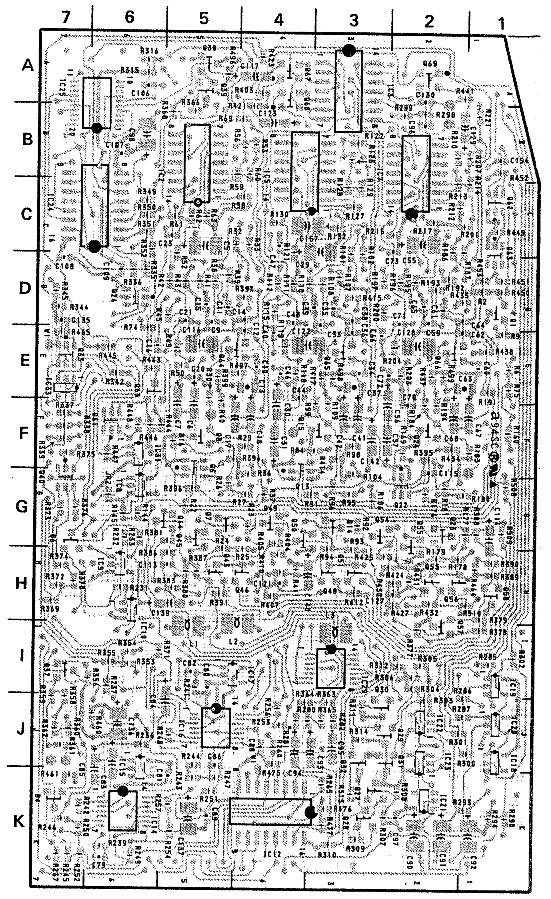
Ser No. 10153- (UC)
30106- (J)
40153- (EK)

VA-132 BOARD

VA - 132 (1 - 643 - 915 - 13)

CN1	G - 6
CV1	H - 5
CV2	H - 4
CV3	H - 3
D4	K - 7
D5	B - 5
D6	G - 7
FL1	G - 5
FL2	G - 3
FL3	H - 2
IC1	E - 6
IC2	B - 5
IC3	A - 3
IC4	E - 4
IC5	B - 4
IC6	E - 1
IC7	C - 3
IC8	G - 6
IC9	H - 6
IC10	I - 6
IC11	K - 6
IC12	K - 4
IC13	J - 6
IC14	K - 6
IC15	J - 6
IC16	J - 4
IC17	I - 4
IC18	J - 1
IC19	I - 1
IC20	J - 1
IC21	K - 2
IC22	J - 2
IC23	J - 2
IC24	C - 7
IC25	A - 7
IC26	A - 7
IC27	C - 6
IC28	J - 7
IC29	I - 3
IC30	B - 3
IC31	F - 6
IC32	A - 4
IC33	E - 7
Q1	D - 1
Q6	F - 5
Q7	G - 5
Q8	F - 5
Q9	C - 4
Q13	G - 4
Q14	G - 3
Q15	F - 4
Q16	C - 3
Q22	G - 3
Q23	G - 2
Q24	F - 2
Q25	C - 1
Q26	D - 6
Q27	K - 3
Q28	K - 3
Q29	J - 2
Q30	I - 3
Q31	J - 2
Q32	J - 3
Q33	E - 7
Q36	I - 7
Q37	I - 7
Q38	A - 5
Q39	A - 5
Q40	G - 7
Q42	H - 5
Q43	H - 5
Q44	G - 5
Q45	G - 5
Q46	H - 4
Q47	H - 4
Q48	H - 3
Q49	G - 4
Q50	G - 3
Q51	H - 3
Q52	H - 2
Q53	H - 2
Q54	G - 3
Q55	G - 2
Q56	H - 2
Q57	I - 1
Q58	H - 1
Q59	A - 4
Q60	E - 6
Q61	F - 6
Q62	C - 1
Q63	C - 1
Q64	E - 4
Q65	E - 3
Q66	E - 2
Q67	A - 4
Q68	A - 4
Q69	A - 2
RV1	H - 4
RV2	G - 1
RV3	D - 1
RV4	F - 4
RV5	C - 5
RV6	D - 5
RV9	B - 1
RV11	H - 3
RV12	G - 1
RV13	E - 1
RV14	F - 3
RV15	C - 3
RV16	C - 4
RV19	C - 1
RV21	H - 2
RV22	H - 1
RV23	F - 1
RV24	F - 1
RV25	D - 2
RV26	D - 3
RV29	D - 1
RV31	I - 6
RV32	J - 6
RV33	K - 6
RV34	I - 5
RV35	J - 5
RV36	K - 5
RV37	I - 3
RV38	J - 3
RV39	K - 3
RV40	I - 4
RV41	J - 4
RV42	K - 4
RV43	I - 2
RV44	J - 2
RV45	K - 2
RV46	I - 2
RV47	J - 2
RV48	K - 2
RV49	I - 3
RV50	J - 3
RV51	K - 3
RV52	I - 2
RV53	I - 1
RV54	I - 1
RV55	J - 1
RV56	K - 1
RV57	K - 1
RV58	I - 6
RV59	A - 5
RV60	I - 4
RV61	J - 4
RV62	K - 4
RV63	I - 5
RV64	J - 5
RV65	K - 5
S1	B - 3
TP1	F - 5
TP2	F - 4
TP3	G - 1



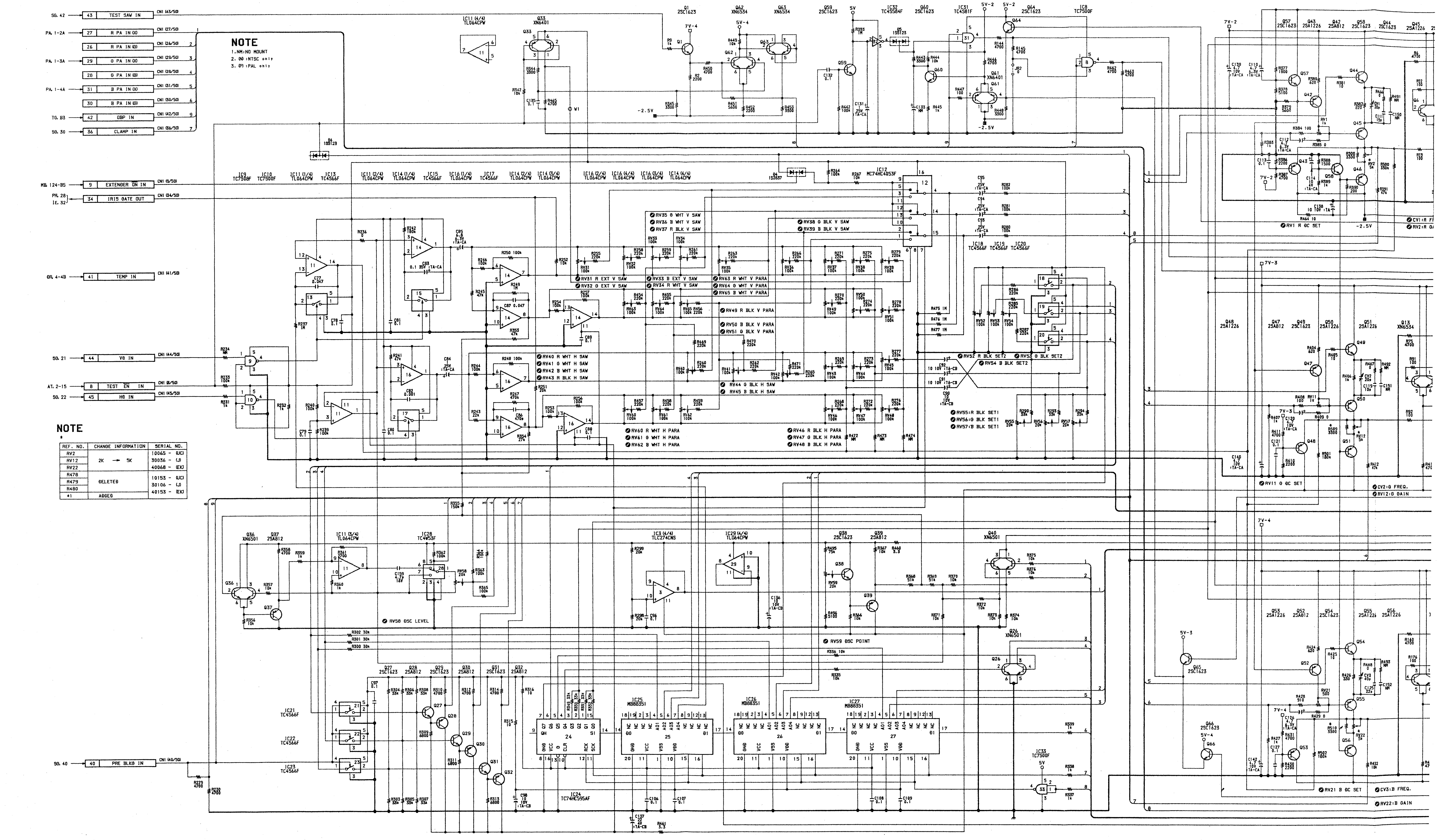


1-643-915-13 SOLDERING SIDE

VA - 132 (1 - 643 - 915 - 13)

CN1	G - 6
CV1	H - 5
CV2	H - 4
CV3	H - 3
D4	K - 7
D5	B - 5
D6	G - 7
FL1	G - 5
FL2	G - 3
FL3	H - 2
IC1	E - 6
IC2	B - 5
IC3	A - 3
IC4	E - 4
IC5	B - 4
IC6	E - 1
IC7	C - 3
IC8	G - 6
IC9	H - 6
IC10	I - 6
IC11	K - 6
IC12	K - 4
IC13	J - 6
IC14	K - 6
IC15	J - 6
IC16	J - 4
IC17	I - 4
IC18	J - 1
IC19	I - 1
IC20	J - 1
IC21	K - 2
IC22	J - 2
IC23	J - 2
IC24	C - 7
IC25	A - 7
IC26	A - 7
IC27	C - 6
IC28	J - 7
IC29	I - 3
IC30	B - 3
IC31	F - 6
IC32	A - 4
IC33	E - 7
Q1	D - 1
Q6	F - 5
Q7	G - 5
Q8	F - 5
Q9	C - 4
Q13	G - 4
Q14	G - 3
Q15	F - 4
Q16	C - 3
Q22	G - 3
Q23	G - 2
Q24	F - 2
Q25	C - 1
Q26	D - 6
Q27	K - 3
Q28	K - 3
Q29	J - 2
Q30	I - 3
Q31	J - 2
Q32	J - 3
Q33	E - 7
Q36	I - 7
Q37	I - 7
Q38	A - 5
Q39	A - 5
Q40	G - 7
Q42	H - 5
Q43	H - 5
Q44	G - 5
Q45	G - 5
Q46	H - 4
Q47	H - 4
Q48	H - 3
Q49	G - 4
Q50	G - 3
Q51	H - 3
Q52	H - 2
Q53	H - 2
Q54	G - 3
Q55	G - 2
Q56	H - 2
Q57	I - 1
Q58	H - 1
Q59	A - 4
Q60	E - 6
Q61	F - 6
Q62	C - 1
Q63	C - 1
Q64	E - 4
Q65	E - 3
Q66	E - 2
Q67	A - 4
Q68	A - 4
Q69	A - 2
RV1	H - 4
RV2	G - 1
RV3	D - 1
RV4	F - 4
RV5	C - 5
RV6	D - 5
RV9	B - 1
RV11	H - 3
RV12	G - 1
RV13	E - 1
RV14	F - 3
RV15	C - 3
RV16	C - 4
RV19	C - 1
RV21	H - 2
RV22	H - 1
RV23	F - 1
RV24	F - 1
RV25	D - 2
RV26	D - 3
RV29	D - 1
RV31	I - 6
RV32	J - 6
RV33	K - 6
RV34	I - 5
RV35	J - 5
RV36	K - 5
RV37	I - 3
RV38	J - 3
RV39	K - 3
RV40	I - 4
RV41	J - 4
RV42	K - 4
RV43	I - 2
RV44	J - 2
RV45	K - 2
RV46	I - 2
RV47	J - 2
RV48	K - 2
RV49	I - 3
RV50	J - 3
RV51	K - 3
RV52	I - 2
RV53	I - 1
RV54	I - 1
RV55	J - 1
RV56	K - 1
RV57	K - 1
RV58	I - 6
RV59	A - 5
RV60	I - 4
RV61	J - 4
RV62	K - 4
RV63	I - 5
RV64	J - 5
RV65	K - 5
S1	B - 3
TP1	F - 5
TP2	F - 4
TP3	G - 1

VA-132 BOARD


SG. 42
43 TEST SAW IN
CN1 (43/50)
PA. 1-2A
27 R PA IN (N)
CN1 (27/50)
26 R PA IN (P)
CN1 (26/50)
PA. 1-3A
29 G PA IN (N)
CN1 (29/50)
28 G PA IN (P)
CN1 (28/50)
PA. 1-4A
31 B PA IN (N)
CN1 (31/50)
30 B PA IN (P)
CN1 (30/50)
TG. B3
42 OBP IN
CN1 (42/50)
SG. 30
36 CLAMP IN
CN1 (36/50)
MB. 124-B5
9 EXTENDER ON IN
CN1 (9/50)
PR. 28
IE. 32
34 IRIS GATE OUT
CN1 (34/50)
GR. 4-4B
41 TEMP IN
CN1 (41/50)
SG. 21
44 VD IN
CN1 (44/50)
AT. 2-15
8 TEST EN IN
CN1 (8/50)
SG. 22
45 HD IN
CN1 (45/50)
SG. 40
40 PRE BLKG IN
CN1 (40/50)
IC17
MC74HC4053F
IC24
TC74HC595AF
IC25
MB88351
IC26
MB88351
IC27
MB88351
RV58 OSC LEVEL
RV59 OSC POINT
RV1 R DC SET
RV11 G DC SET
RV21 B DC SET
CV2:G FREQ.
RV12:G GAIN
CV3:B FREQ.
RV22:B GAIN
-2.5V
7V-2
7V-3
7V-4
5V-3
5V-4

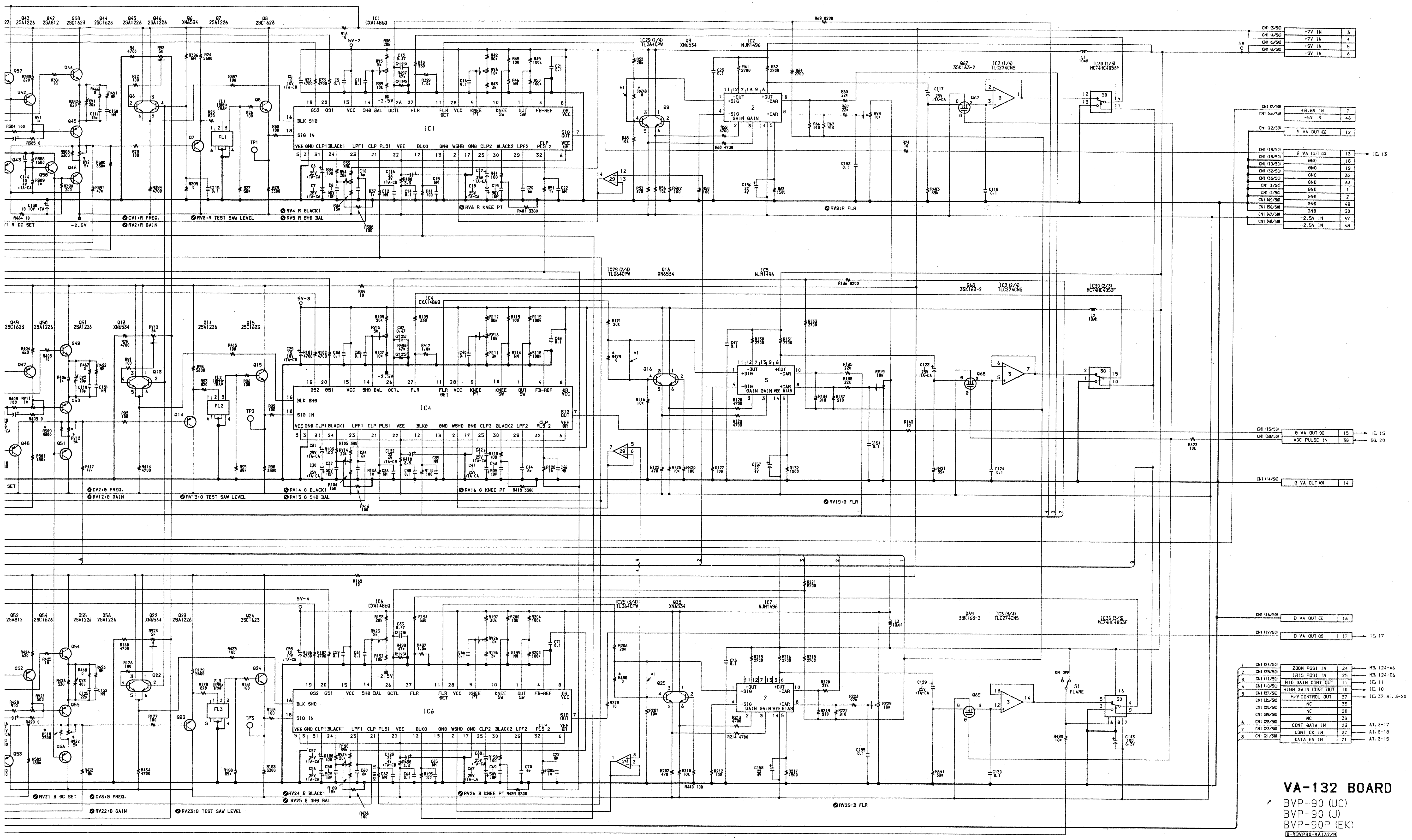
NOTE

1.NM:NO MOUNT
2. (N) :NTSC only
3. (P) :PAL only

NOTE

*

REF. NO.	CHANGE INFORMATION	SERIAL NO.
RV2	2K → 5K	10065 - (UC) 30036 - (J) 40068 - (EK)
RV12		
RV22		
R478	DELETED	10153 - (UC) 30106 - (J) 40153 - (EK)
R479		
R480		
*1	ADDED	


IC1 CXA1486Q
IC4 CXA1486Q
IC6 CXA1486Q
IC2 NJM1496
IC5 NJM1496
IC7 NJM1496
IC29 (1/4) TL064CPW
IC29 (2/4) TL064CPW
IC29 (3/4) TL064CPW
IC3 (1/4) TLC274CNS
IC3 (2/4) TLC274CNS
IC3 (3/4) TLC274CNS
IC30 (1/3) MC74HC4053F
IC30 (2/3) MC74HC4053F
IC30 (3/3) MC74HC4053F
Q67 3SK163-2
Q68 3SK163-2
Q69 3SK163-2
Q9 XN6534
Q16 XN6534
Q25 XN6534
FL1
FL2
FL3
TP1
TP2
TP3
BLK SHD
SIG IN
SIG OUT
CV1:R FREQ.
RV2:R GAIN
RV3:R TEST SAW LEVEL
RV4 R BLACK1
RV5 R SHD BAL
RV6 R KNEE PT
RV9:R FLR
RV1 R DC SET
CV2:G FREQ.
RV12:G GAIN
RV13:G TEST SAW LEVEL
RV14 G BLACK1
RV15 G SHD BAL
RV16 G KNEE PT
RV19:G FLR
RV21 B DC SET
CV3:B FREQ.
RV22:B GAIN
RV23:B TEST SAW LEVEL
RV24 B BLACK1
RV25 B SHD BAL
RV26 B KNEE PT
RV29:B FLR
S1 FLARE
ON OFF
5V
-2.5V
CN1 (3/50) +7V IN 3
CN1 (4/50) +7V IN 4
CN1 (5/50) +5V IN 5
CN1 (6/50) +5V IN 6
CN1 (7/50) +8.8V IN 7
CN1 (46/50) -5V IN 46
CN1 (12/50) R VA OUT (G) 12
CN1 (13/50) R VA OUT (X) 13 IE. 13
CN1 (18/50) GND 18
CN1 (19/50) GND 19
CN1 (32/50) GND 32
CN1 (33/50) GND 33
CN1 (1/50) GND 1
CN1 (2/50) GND 2
CN1 (49/50) GND 49
CN1 (50/50) GND 50
CN1 (47/50) -2.5V IN 47
CN1 (48/50) -2.5V IN 48
CN1 (15/50) G VA OUT (X) 15 IE. 15
CN1 (38/50) AGC PULSE IN 38 SG. 20
CN1 (14/50) G VA OUT (G) 14
CN1 (16/50) B VA OUT (G) 16
CN1 (17/50) B VA OUT (X) 17 IE. 17
CN1 (24/50) ZOOM POSI IN 24 MB. 124-A6
CN1 (25/50) IRIS POSI IN 25 MB. 124-B6
CN1 (11/50) MID GAIN CONT OUT 11 IE. 11
CN1 (10/50) HIGH GAIN CONT OUT 10 IE. 10
CN1 (37/50) H/V CONTROL OUT 37 IE. 37. AT. 3-20
CN1 (35/50) NC 35
CN1 (20/50) NC 20
CN1 (39/50) NC 39
CN1 (23/50) CONT DATA IN 23 AT. 3-17
CN1 (22/50) CONT CK IN 22 AT. 3-18
CN1 (21/50) DATA EN IN 21 AT. 3-15
1
2
3
4
5
I
J
K
L
M
N
O
P

VA-132 BOARD

BVP-90 (UC)
BVP-90 (J)
BVP-90P (EK)

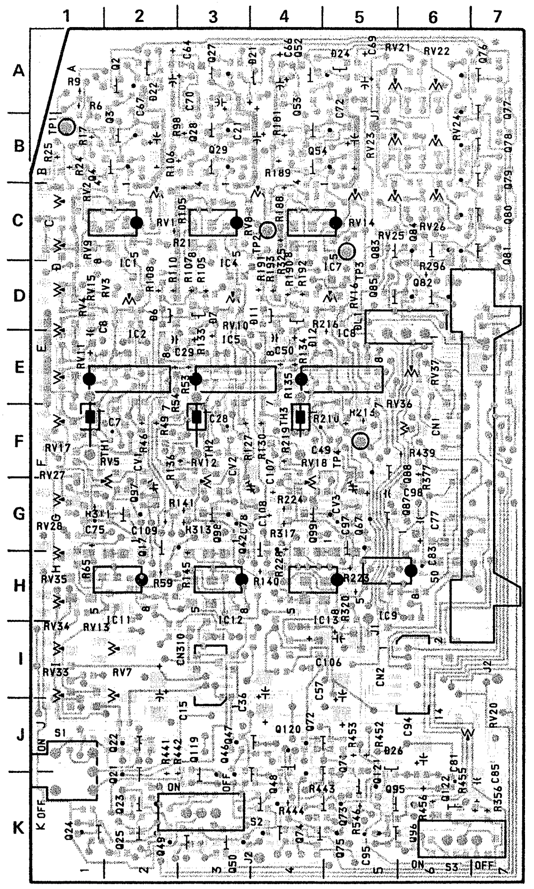
B-¥BVP90-VA132/M

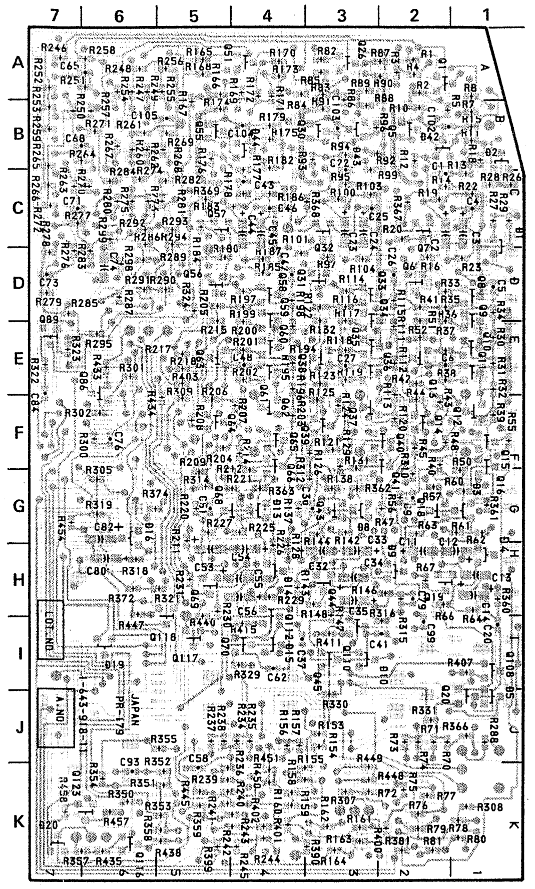
Ser No.10001-10014 (UC)
30001-30020 (J)
40001-40012 (EK)

PR-179U/179 BOARD

PR - 179U / 179 (1 - 643 - 918 - 11)

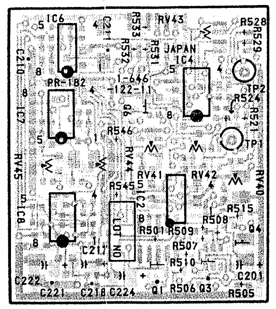
CN1	F - 6	Q37	F - 3	RV17	F - 1
CN3	I - 3	Q38	E - 4	RV18	F - 4
		Q39	F - 4	RV20	J - 7
CV1	F - 2	Q40	F - 2	RV21	A - 5
CV2	F - 3	Q41	G - 2	RV22	A - 6
CV3	G - 5	Q42	G - 3	RV23	B - 5
		Q43	G - 3	RV24	B - 6
DL1	D - 5	Q44	H - 3	RV25	C - 5
		Q45	I - 3	RV26	C - 6
D1	C - 1	Q46	J - 3	RV27	F - 1
D2	B - 1	Q47	J - 3	RV28	G - 1
D3	G - 1	Q48	K - 4	RV33	I - 1
D4	H - 1	Q49	K - 2	RV34	I - 1
D5	J - 1	Q50	K - 3	RV35	H - 1
D6	D - 2	Q51	A - 5	RV36	F - 5
D7	D - 3	Q52	A - 4	RV37	E - 6
D8	G - 3	Q53	A - 4		
D9	H - 2	Q54	B - 4	S1	J - 1
D10	I - 2	Q55	B - 5	S2	K - 4
D11	D - 4	Q56	D - 5	S3	K - 6
D12	E - 4	Q57	C - 5		
D13	G - 4	Q58	D - 4	TH1	F - 2
D14	H - 4	Q59	D - 4	TH2	F - 3
D15	I - 4	Q60	E - 4	TH3	F - 4
D16	G - 6	Q61	F - 4		
D19	I - 6	Q62	F - 4	TP1	B - 1
D20	K - 7	Q63	E - 5	TP2	C - 4
D21	A - 3	Q64	F - 5	TP3	D - 5
D22	A - 2	Q65	F - 4	TP4	F - 5
D24	A - 5	Q66	G - 4		
D26	J - 5	Q67	G - 5		
D42	B - 2	Q68	G - 5		
D43	B - 3	Q69	H - 5		
D44	B - 4	Q70	I - 5		
		Q71	J - 5		
IC1	D - 2	Q72	J - 4		
IC2	E - 2	Q73	K - 5		
IC4	D - 3	Q74	K - 4		
IC5	E - 3	Q75	K - 5		
IC7	D - 5	Q76	A - 7		
IC8	E - 5	Q77	A - 7		
IC9	H - 5	Q78	B - 7		
IC11	H - 2	Q79	B - 7		
IC12	H - 3	Q80	C - 7		
IC13	H - 4	Q81	C - 7		
		Q82	D - 6		
Q1	A - 2	Q83	C - 5		
Q2	A - 2	Q84	C - 6		
Q3	B - 2	Q85	D - 5		
Q4	B - 1	Q86	E - 6		
Q5	B - 2	Q87	G - 6		
Q6	D - 2	Q88	F - 6		
Q7	C - 2	Q89	D - 7		
Q8	D - 1	Q95	K - 5		
Q9	D - 1	Q96	K - 6		
Q10	E - 1	Q97	G - 2		
Q11	E - 1	Q98	G - 3		
Q12	F - 1	Q99	G - 4		
Q13	E - 2	Q108	I - 1		
Q14	F - 2	Q110	I - 3		
Q15	F - 1	Q112	I - 4		
Q16	G - 1	Q116	K - 6		
Q17	G - 2	Q117	I - 5		
Q18	G - 2	Q118	I - 5		
Q19	H - 2	Q122	K - 6		
Q20	J - 2	Q123	K - 7		
Q21	K - 2				
Q22	J - 2	RV1	C - 2		
Q23	K - 2	RV2	C - 1		
Q24	K - 1	RV3	D - 2		
Q25	K - 2	RV4	D - 1		
Q26	A - 3	RV5	F - 2		
Q27	A - 3	RV7	I - 2		
Q28	B - 3	RV8	C - 3		
Q29	B - 3	RV9	C - 1		
Q30	B - 4	RV10	D - 3		
Q31	D - 4	RV11	E - 1		
Q32	C - 3	RV12	F - 3		
Q33	D - 2	RV13	I - 1		
Q34	D - 2	RV14	C - 5		
Q35	E - 3	RV15	D - 1		
Q36	E - 2	RV16	D - 5		

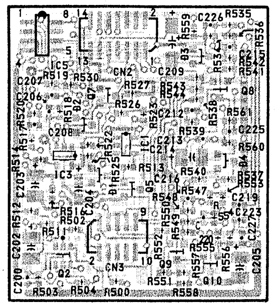




1-643-918-11 SOLDERING SIDE

PR-182 BOARD





1-646-122-11 SOLDERING SIDE

PR-179U/17

PR - 179U / 179 (1 - 643 - 9

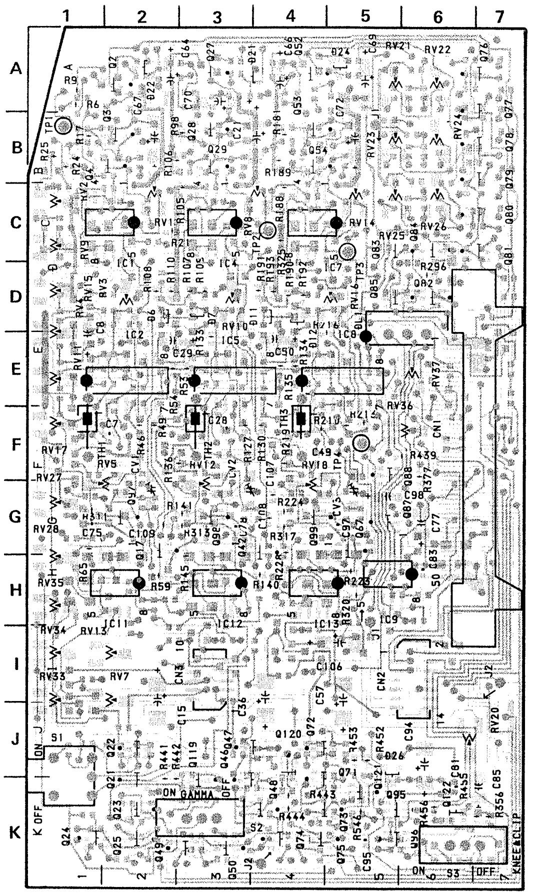
CN1	F - 6
CN3	I - 3
CV1	F - 2
CV2	F - 3
CV3	G - 5
DL1	D - 5
D1	C - 1
D2	B - 1
D3	G - 1
D4	H - 1
D5	J - 1
D6	D - 2
D7	D - 3
D8	G - 3
D9	H - 2
D10	I - 2
D11	D - 4
D12	E - 4
D13	G - 4
D14	H - 4
D15	I - 4
D16	G - 6
D19	I - 6
D20	K - 7
D21	A - 3
D22	A - 2
D24	A - 5
D26	J - 5
D42	B - 2
D43	B - 3
D44	B - 4
IC1	D - 2
IC2	E - 2
IC4	D - 3
IC5	E - 3
IC7	D - 5
IC8	E - 5
IC9	H - 5
IC11	H - 2
IC12	H - 3
IC13	H - 4
Q1	A - 2
Q2	A - 2
Q3	B - 2
Q4	B - 1
Q5	B - 2
Q6	D - 2
Q7	C - 2
Q8	D - 1
Q9	D - 1
Q10	E - 1
Q11	E - 1
Q12	F - 1
Q13	E - 2
Q14	F - 2
Q15	F - 1
Q16	G - 1
Q17	G - 2
Q18	G - 2
Q19	H - 2
Q20	J - 2
Q21	K - 2
Q22	J - 2
Q23	K - 2
Q24	K - 1
Q25	K - 2
Q26	A - 3
Q27	A - 3
Q28	B - 3
Q29	B - 3
Q30	B - 4
Q31	D - 4
Q32	C - 3
Q33	D - 2
Q34	D - 2
Q35	E - 3
Q36	E - 2

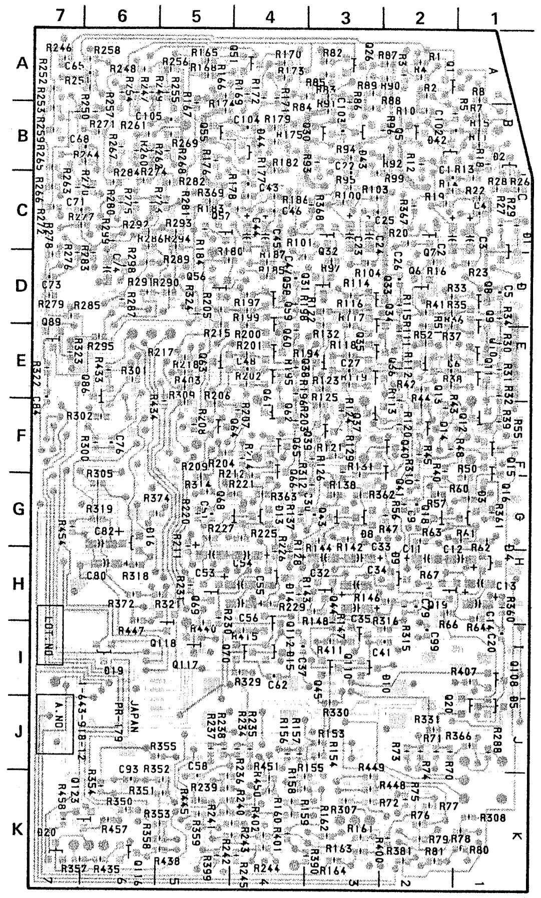
Ser No.	
10015-	(UC)
30021-	(J)
40013-	(EK)

PR-179U/179 BOARD

PR - 179U / 179 (1 - 643 - 918 - 12)

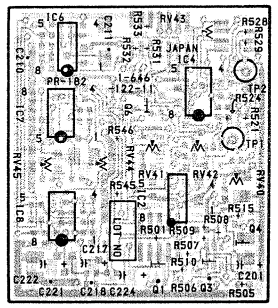
CN1	F - 6
CN3	I - 3
CV1	F - 2
CV2	F - 3
CV3	G - 5
DL1	D - 5
D1	C - 1
D2	B - 1
D3	G - 1
D4	H - 1
D5	J - 1
D6	D - 2
D7	D - 3
D8	G - 3
D9	H - 2
D10	I - 2
D11	D - 4
D12	E - 4
D13	G - 4
D14	H - 4
D15	I - 4
D16	G - 6
D19	I - 6
D20	K - 7
D21	A - 3
D22	A - 2
D24	A - 5
D26	J - 5
D42	B - 2
D43	B - 3
D44	B - 4
IC1	D - 2
IC2	E - 2
IC4	D - 3
IC5	E - 3
IC7	D - 5
IC8	E - 5
IC9	H - 5
IC11	H - 2
IC12	H - 3
IC13	H - 4
Q1	A - 2
Q2	A - 2
Q3	B - 2
Q4	B - 1
Q5	B - 2
Q6	D - 2
Q7	C - 2
Q8	D - 1
Q9	D - 1
Q10	E - 1
Q11	E - 1
Q12	F - 1
Q13	E - 2
Q14	F - 2
Q15	F - 1
Q16	G - 1
Q17	G - 2
Q18	G - 2
Q19	H - 2
Q20	J - 2
Q21	K - 2
Q22	J - 2
Q23	K - 2
Q24	K - 1
Q25	K - 2
Q26	A - 3
Q27	A - 3
Q28	B - 3
Q29	B - 3
Q30	B - 4
Q31	D - 4
Q32	C - 3
Q33	D - 2
Q34	D - 2
Q35	E - 3
Q36	E - 2
Q37	F - 3
Q38	E - 4
Q39	F - 4
Q40	F - 2
Q41	G - 2
Q42	G - 3
Q43	G - 3
Q44	H - 3
Q45	I - 3
Q46	J - 3
Q47	J - 3
Q48	K - 4
Q49	K - 2
Q50	K - 3
Q51	A - 5
Q52	A - 4
Q53	A - 4
Q54	B - 4
Q55	B - 5
Q56	D - 5
Q57	C - 5
Q58	D - 4
Q59	D - 4
Q60	E - 4
Q61	F - 4
Q62	F - 4
Q63	E - 5
Q64	F - 5
Q65	F - 4
Q66	G - 4
Q67	G - 5
Q68	G - 5
Q69	H - 5
Q70	I - 5
Q71	J - 5
Q72	J - 4
Q73	K - 5
Q74	K - 4
Q75	K - 5
Q76	A - 7
Q77	A - 7
Q78	B - 7
Q79	B - 7
Q80	C - 7
Q81	C - 7
Q82	D - 6
Q83	C - 5
Q84	C - 6
Q85	D - 5
Q86	E - 6
Q87	G - 6
Q88	F - 6
Q89	D - 7
Q95	K - 5
Q96	K - 6
Q97	G - 2
Q98	G - 3
Q99	G - 4
Q108	I - 1
Q110	I - 3
Q112	I - 4
Q116	K - 6
Q117	I - 5
Q118	I - 5
Q122	K - 6
Q123	K - 7
RV1	C - 2
RV2	C - 1
RV3	D - 2
RV4	D - 1
RV5	F - 2
RV7	I - 2
RV8	C - 3
RV9	C - 1
RV10	D - 3
RV11	E - 1
RV12	F - 3
RV13	I - 1
RV14	C - 5
RV15	D - 1
RV16	D - 5
RV17	F - 1
RV18	F - 4
RV20	J - 7
RV21	A - 5
RV22	A - 6
RV23	B - 5
RV24	B - 6
RV25	C - 5
RV26	C - 6
RV27	F - 1
RV28	G - 1
RV33	I - 1
RV34	I - 1
RV35	H - 1
RV36	F - 5
RV37	E - 6
S1	J - 1
S2	K - 4
S3	K - 6
TH1	F - 2
TH2	F - 3
TH3	F - 4
TP1	B - 1
TP2	C - 4
TP3	D - 5
TP4	F - 5

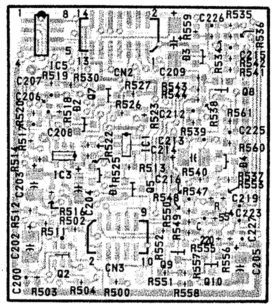




1-643-918-12 SOLDERING SIDE

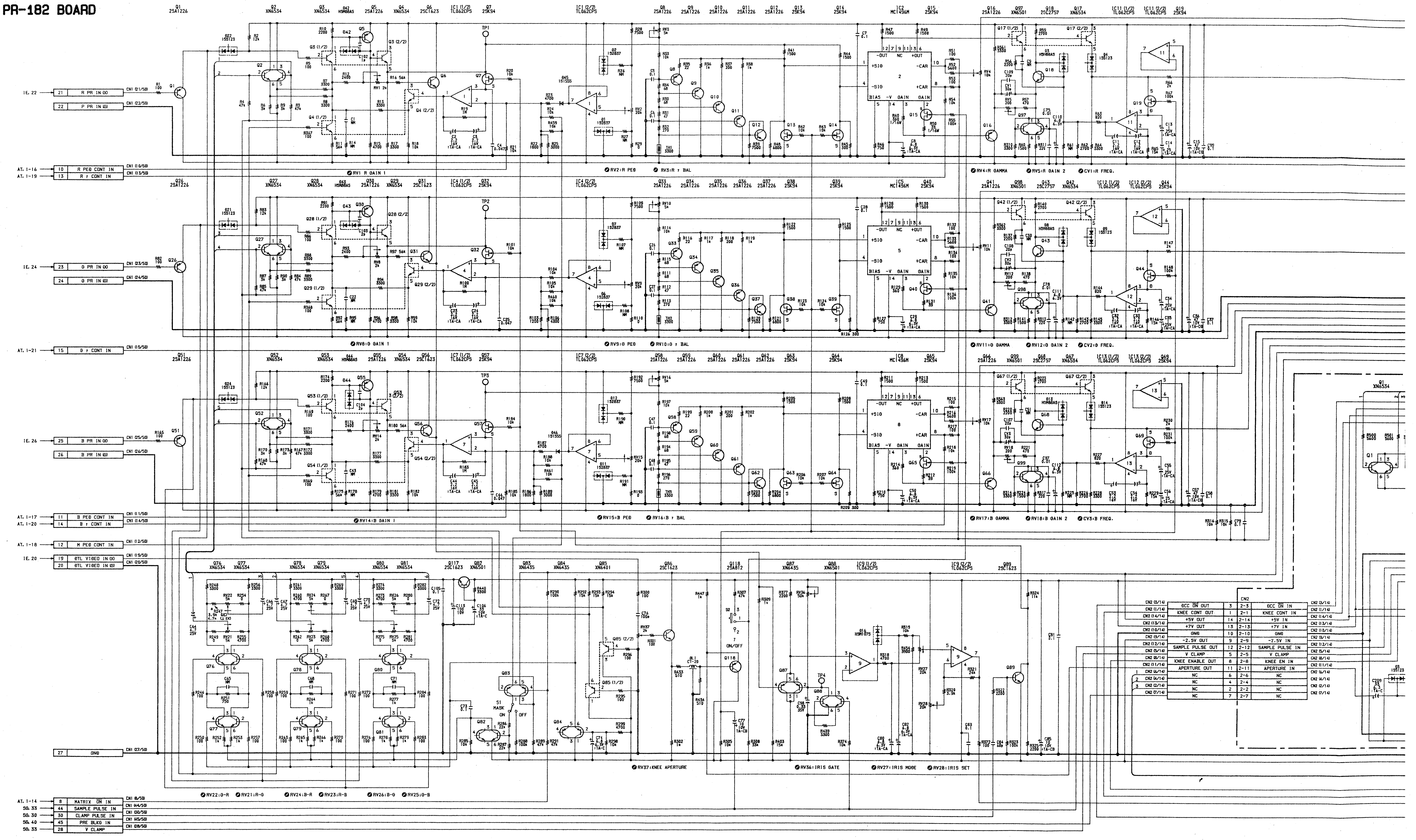
PR-182 BOARD

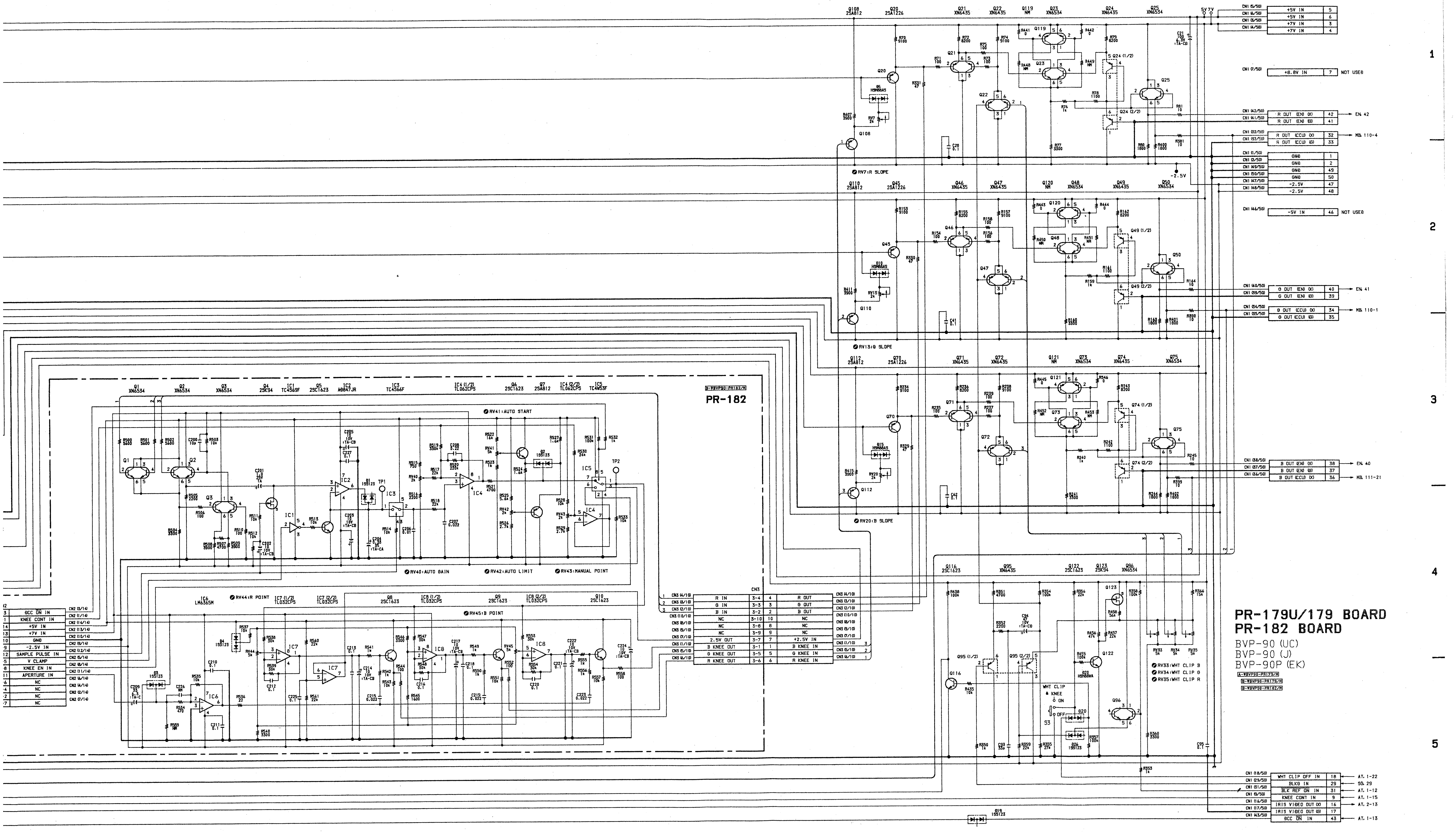




1-646-122-11 SOLDERING SIDE

PR-179U/179 BOARD
PR-182 BOARD


IE. 22 → 21 R PR IN (X) CN1 (21/50)
22 P PR IN (G) CN1 (22/50)
AT. 1-16 → 10 R PED CONT IN CN1 (10/50)
AT. 1-19 → 13 R γ CONT IN CN1 (13/50)
IE. 24 → 23 G PR IN (X) CN1 (23/50)
24 G PR IN (G) CN1 (24/50)
AT. 1-21 → 15 G γ CONT IN CN1 (15/50)
IE. 26 → 25 B PR IN (X) CN1 (25/50)
26 B PR IN (G) CN1 (26/50)
AT. 1-17 → 11 B PED CONT IN CN1 (11/50)
AT. 1-20 → 14 B γ CONT IN CN1 (14/50)
AT. 1-18 → 12 M PED CONT IN CN1 (12/50)
IE. 20 → 19 DTL VIDEO IN (X) CN1 (19/50)
20 DTL VIDEO IN (G) CN1 (20/50)
27 GND CN1 (27/50)
AT. 1-14 → 8 MATRIX ON IN CN1 (8/50)
SG. 33 → 44 SAMPLE PULSE IN CN1 (44/50)
SG. 30 → 30 CLAMP PULSE IN CN1 (30/50)
SG. 40 → 45 PRE BLKG IN CN1 (45/50)
SG. 33 28 V CLAMP CN1 (28/50)
RV1 R GAIN 1
RV2:R PED
RV3:R γ BAL
RV4:R GAMMA
RV5:R GAIN 2
CV1:R FREQ.
RV8:G GAIN 1
RV9:G PED
RV10:G γ BAL
RV11:G GAMMA
RV12:G GAIN 2
CV2:G FREQ.
RV14:B GAIN 1
RV15:B PED
RV16:B γ BAL
RV17:B GAMMA
RV18:B GAIN 2
CV3:B FREQ.
RV22:G-R
RV21:R-G
RV24:B-R
RV23:R-B
RV26:B-G
RV25:G-B
RV37:KNEE APERTURE
RV34:IRIS GATE
RV27:IRIS MODE
RV28:IRIS SET
S1 MASK ON OFF
S2 ON/OFF
TP1
TP2
TP3
TP4
IC1 (1/2) TL062CPS
IC1 (2/2) TL062CPS
IC2 MC1496M
IC4 (1/2) TL062CPS
IC4 (2/2) TL062CPS
IC5 MC1496M
IC7 (1/2) TL062CPS
IC7 (2/2) TL062CPS
IC8 MC1496M
IC9 (1/2) TL062CPS
IC9 (2/2) TL062CPS
IC11 (1/2) TL062CPS
IC11 (2/2) TL062CPS
IC12 (1/2) TL062CPS
IC12 (2/2) TL062CPS
IC13 (1/2) TL062CPS
IC13 (2/2) TL062CPS
-OUT NC +OUT
+SIG -CAR
-SIG +CAR
BIAS -V GAIN GAIN
DL1 CT-20
CN2
CN2 (3/14) DCC ON OUT 3 2-3 DCC ON IN CN2 (3/14)
CN2 (1/14) KNEE CONT OUT 1 2-1 KNEE CONT IN CN2 (1/14)
CN2 (14/14) +5V OUT 14 2-14 +5V IN CN2 (14/14)
CN2 (13/14) +7V OUT 13 2-13 +7V IN CN2 (13/14)
CN2 (10/14) GND 10 2-10 GND CN2 (10/14)
CN2 (9/14) -2.5V OUT 9 2-9 -2.5V IN CN2 (9/14)
CN2 (12/14) SAMPLE PULSE OUT 12 2-12 SAMPLE PULSE IN CN2 (12/14)
CN2 (5/14) V CLAMP 5 2-5 V CLAMP CN2 (5/14)
CN2 (8/14) KNEE ENABLE OUT 8 2-8 KNEE EN IN CN2 (8/14)
CN2 (11/14) APERTURE OUT 11 2-11 APERTURE IN CN2 (11/14)
CN2 (6/14) NC 6 2-6 NC CN2 (6/14)
CN2 (4/14) NC 4 2-4 NC CN2 (4/14)
CN2 (2/14) NC 2 2-2 NC CN2 (2/14)
CN2 (7/14) NC 7 2-7 NC CN2 (7/14)
C209 33 6.3 :TA-C


PR-182
RV7:R SLOPE
RV13:G SLOPE
RV20:B SLOPE
RV41:AUTO START
RV40:AUTO GAIN
RV42:AUTO LIMIT
RV43:MANUAL POINT
RV44:R POINT
RV45:B POINT
RV33:WHT CLIP B
RV34:WHT CLIP G
RV35:WHT CLIP R
WHT CLIP
KNEE
ON
OFF
S3
+5V IN
+7V IN
+8.8V IN
NOT USED
R OUT (EN)
R OUT (CCU)
G OUT (EN)
G OUT (CCU)
B OUT (EN)
B OUT (CCU)
GND
-2.5V
-5V IN
EN 42
EN 41
EN 40
MB 110-4
MB 110-1
MB 111-21
R IN
G IN
B IN
NC
2.5V OUT
+2.5V IN
B KNEE OUT
G KNEE OUT
R KNEE OUT
B KNEE IN
G KNEE IN
R KNEE IN
BCC ON IN
KNEE CONT IN
SAMPLE PULSE IN
V CLAMP
KNEE EN IN
APERTURE IN
WHT CLIP OFF IN
BLKG IN
BLK REF ON IN
IRIS VIDEO OUT
BCC ON IN
AT. 1-22
SG. 29
AT. 1-12
AT. 1-15
AT. 2-13
AT. 1-13
TP1
TP2

PR-179U/179 BOARD
PR-182 BOARD

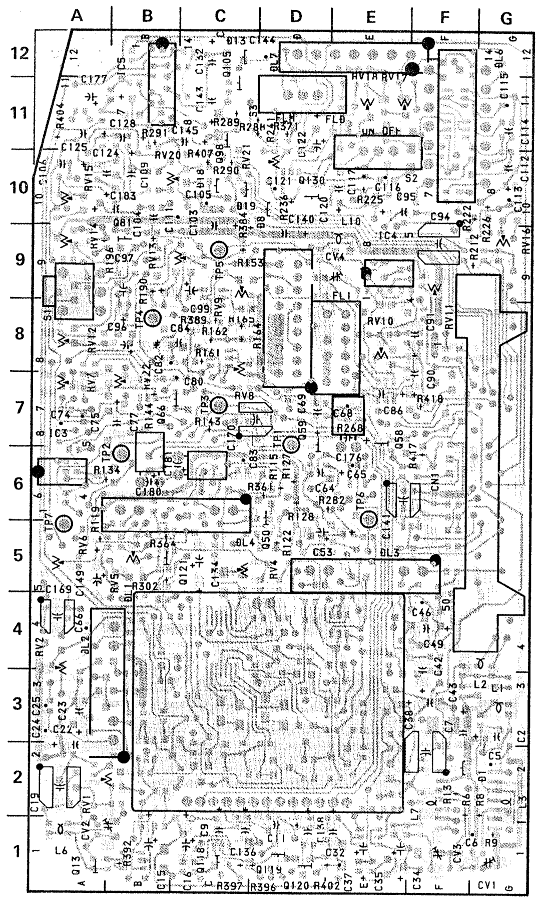
BVP-90 (UC)
BVP-90 (J)
BVP-90P (EK)

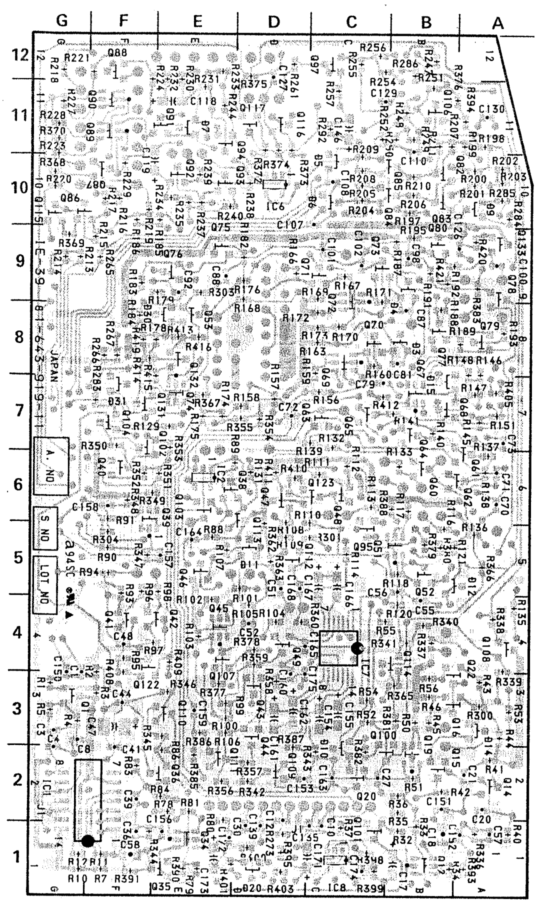
Ser No.10001-10034 (UC)
30001-30020 (J)
40001-40047 (EK)

IE-39/39P BOARD

IE - 39 / 39P (1 - 643 - 919 - 11)

CN1	F-6
CV1	G-1
CV2	A-1
CV3	F-1
CV4	D-9
DL1	B-4
DL2	A-4
DL3	E-5
DL4	C-5
DL5	D-8
DL6	G-12
DL7	D-12
D1	G-2
D3	B-8
D4	B-8
D5	C-10
D6	C-10
D7	E-11
D8	D-10
D9	A-10
D10	C-2
D11	D-5
D12	A-5
D13	C-12
D14	A-2
D15	B-7
D18	C-10
D19	C-10
D20	D-1
D30	F-8
D31	F-7
FL1	D-9
IC1	G-2
IC2	E-6
IC3	A-7
IC4	D-9
IC5	B-12
IC6	D-10
IC7	C-4
IC8	C-1
Q1	F-3
Q12	B-1
Q13	A-1
Q14	A-2
Q15	A-2
Q16	A-3
Q19	B-3
Q20	C-2
Q22	A-4
Q34	E-1
Q35	E-1
Q36	E-2
Q38	D-6
Q39	E-6
Q40	F-6
Q41	F-4
Q42	E-4
Q43	D-3
Q44	D-2
Q45	E-4
Q46	E-5
Q47	D-6
Q48	C-6
Q49	D-4
Q50	D-5
Q51	C-5
Q52	B-5
Q53	E-8
Q58	E-7
Q59	D-7
Q60	B-6
Q61	A-6
Q62	A-6
Q63	D-7
Q64	B-7
Q65	C-7
Q66	B-7
Q67	B-8
Q68	A-7
Q69	C-7
Q70	C-8
Q71	D-9
Q72	C-8
Q73	C-9
Q74	E-7
Q75	E-9
Q76	E-9
Q77	B-8
Q78	A-9
Q79	A-8
Q80	B-9
Q81	B-10
Q82	A-10
Q83	B-10
Q84	C-10
Q85	B-10
Q86	G-10
Q87	F-10
Q88	F-12
Q89	F-11
Q90	F-11
Q91	E-11
Q92	E-10
Q93	D-10
Q94	D-11
Q95	C-5
Q97	C-12
Q98	C-10
Q100	C-3
Q101	C-1
Q102	E-7
Q103	E-6
Q104	F-7
Q105	C-12
Q106	B-11
Q107	E-3
Q108	A-4
Q109	D-2
Q110	E-3
Q111	D-2
Q112	D-5
Q113	D-5
Q114	B-4
Q115	G-10
Q116	D-11
Q117	D-11
Q118	C-1
Q119	D-1
Q120	D-1
Q121	C-5
Q122	F-3
Q123	C-6
Q130	D-10
Q131	E-7
Q133	A-9
RV1	A-2
RV2	A-4
RV4	D-5
RV5	B-5
RV6	A-5
RV7	A-7
RV8	C-7
RV9	C-8
RV10	D-8
RV11	F-8
RV12	A-8
RV13	B-9
RV14	A-9
RV15	A-10
RV16	G-9
RV17	E-11
RV18	E-11
RV20	B-20
RV21	C-10
RV22	B-7
S1	A-8
S2	E-10
S3	C-11
TP1	D-7
TP2	A-6
TP3	C-7
TP4	B-8
TP5	C-9
TP6	E-6
TP7	A-5





1-643-919-11 SOLDERING SIDE

IE - 39 / 39P (1 - 643 - 919 - 11)

CN1	F-6
CV1	G-1
CV2	A-1
CV3	F-1
CV4	D-9
DL1	B-4
DL2	A-4
DL3	E-5
DL4	C-5
DL5	D-8
DL6	G-12
DL7	D-12
D1	G-2
D3	B-8
D4	B-8
D5	C-10
D6	C-10
D7	E-11
D8	D-10
D9	A-10
D10	C-2
D11	D-5
D12	A-5
D13	C-12
D14	A-2
D15	B-7
D18	C-10
D19	C-10
D20	D-1
D30	F-8
D31	F-7
FL1	D-9
IC1	G-2
IC2	E-6
IC3	A-7
IC4	D-9
IC5	B-12
IC6	D-10
IC7	C-4
IC8	C-1
Q1	F-3
Q12	B-1
Q13	A-1
Q14	A-2
Q15	A-2
Q16	A-3
Q19	B-3
Q20	C-2
Q22	A-4
Q34	E-1
Q35	E-1
Q36	E-2
Q38	D-6
Q39	E-6
Q40	F-6
Q41	F-4
Q42	E-4
Q43	D-3
Q44	D-2
Q45	E-4
Q46	E-5
Q47	D-6
Q48	C-6
Q49	D-4
Q50	D-5
Q51	C-5
Q52	B-5
Q53	E-8
Q58	E-7
Q59	D-7
Q60	B-6
Q61	A-6
Q62	A-6
Q63	D-7
Q64	B-7
Q65	C-7
Q66	B-7
Q67	B-8
Q68	A-7
Q69	C-7
Q70	C-8
Q71	D-9
Q72	C-8
Q73	C-9
Q74	E-7
Q75	E-9
Q76	E-9
Q77	B-8
Q78	A-9
Q79	A-8
Q80	B-9
Q81	B-10
Q82	A-10
Q83	B-10
Q84	C-10
Q85	B-10
Q86	G-10
Q87	F-10
Q88	F-12
Q89	F-11
Q90	F-11
Q91	E-11
Q92	E-10
Q93	D-10
Q94	D-11
Q95	C-5
Q97	C-12
Q98	C-10
Q100	C-3
Q101	C-1
Q102	E-7
Q103	E-6
Q104	F-7
Q105	C-12
Q106	B-11
Q107	E-3
Q108	A-4
Q109	D-2
Q110	E-3
Q111	D-2
Q112	D-5
Q113	D-5
Q114	B-4
Q115	G-10
Q116	D-11
Q117	D-11
Q118	C-1
Q119	D-1
Q120	D-1
Q121	C-5
Q122	F-3
Q123	C-6
Q130	D-10
Q131	E-7
Q133	A-9
RV1	A-2
RV2	A-4
RV4	D-5
RV5	B-5
RV6	A-5
RV7	A-7
RV8	C-7
RV9	C-8
RV10	D-8
RV11	F-8
RV12	A-8
RV13	B-9
RV14	A-9
RV15	A-10
RV16	G-9
RV17	E-11
RV18	E-11
RV20	B-20
RV21	C-10
RV22	B-7
S1	A-8
S2	E-10
S3	C-11
TP1	D-7
TP2	A-6
TP3	C-7
TP4	B-8
TP5	C-9
TP6	E-6
TP7	A-5

IE - 39 / 39P (1 - 643 - 919

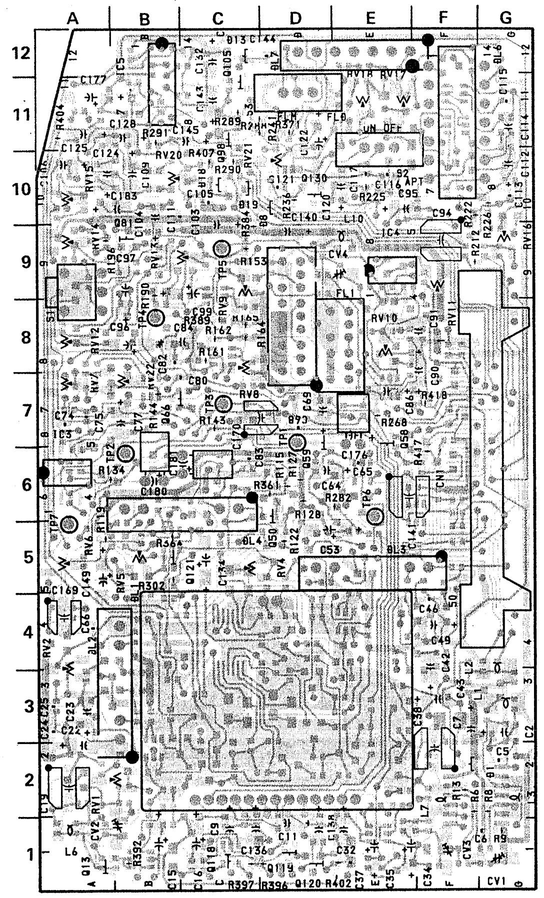
CN1	F-6
CV1	G-1
CV2	A-1
CV3	F-1
CV4	D-9
DL1	B-4
DL2	A-4
DL3	E-5
DL4	C-5
DL5	D-8
DL6	G-12
DL7	D-12
D1	G-2
D3	B-8
D4	B-8
D5	C-10
D6	C-10
D7	E-11
D8	D-10
D9	A-10
D10	C-2
D11	D-5
D12	A-5
D13	C-12
D14	A-2
D15	B-7
D18	C-10
D19	C-10
D20	D-1
D30	F-8
D31	F-7
FL1	D-9
IC1	G-2
IC2	E-6
IC3	A-7
IC4	D-9
IC5	B-12
IC6	D-10
IC7	C-4
IC8	C-1
Q1	F-3
Q12	B-1
Q13	A-1
Q14	A-2
Q15	A-2
Q16	A-3
Q19	B-3
Q20	C-2
Q22	A-4
Q34	E-1
Q35	E-1
Q36	E-2
Q38	D-6
Q39	E-6
Q40	F-6
Q41	F-4
Q42	E-4
Q43	D-3
Q44	D-2
Q45	E-4
Q46	E-5
Q47	D-6
Q48	C-6
Q49	D-4
Q50	D-5
Q51	C-5
Q52	B-5
Q53	E-8
Q58	E-7
Q59	D-7
Q60	B-6
Q61	A-6
Q62	A-6
Q63	D-7
Q64	B-7
Q65	C-7

Ser No. 10035-10152 (UC)
30021-30105 (J)
40048-40152 (EK)

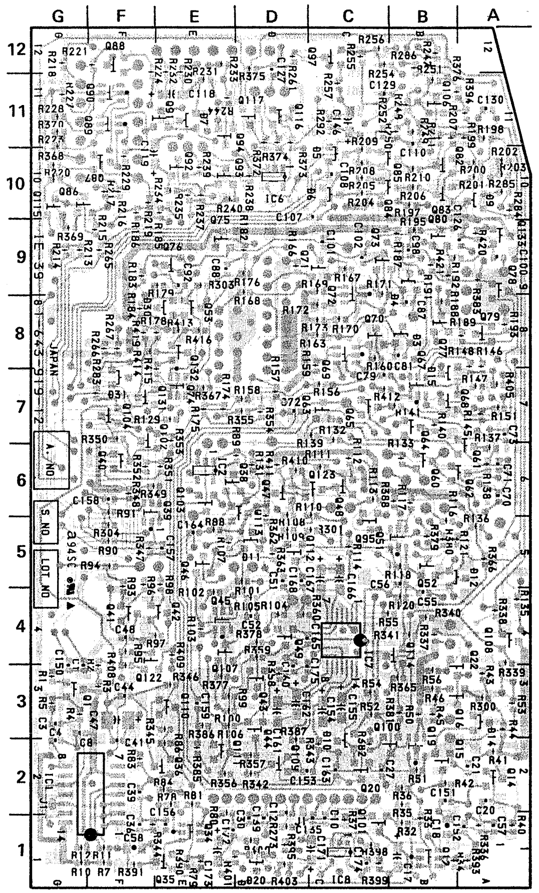
IE-39/39P BOARD

IE-39/39P (1-643-919-12)

CN1	F-6
CV1	G-1
CV2	A-1
CV3	F-1
CV4	D-9
DL1	B-4
DL2	A-4
DL3	E-5
DL4	C-5
DL5	D-8
DL6	G-12
DL7	D-12
D1	G-2
D3	B-8
D4	B-8
D5	C-10
D6	C-10
D7	E-11
D8	D-10
D9	A-10
D10	C-2
D11	D-5
D12	A-5
D13	C-12
D14	A-2
D15	B-7
D18	C-10
D19	C-10
D20	D-1
D30	F-8
D31	F-7
FL1	D-9
IC1	G-2
IC2	E-6
IC3	A-7
IC4	D-9
IC5	B-12
IC6	D-10
IC7	C-4
IC8	C-1
Q1	F-3
Q12	B-1
Q13	A-1
Q14	A-2
Q15	A-2
Q16	A-3
Q19	B-3
Q20	C-2
Q22	A-4
Q34	E-1
Q35	E-1
Q36	E-2
Q38	D-6
Q39	E-6
Q40	F-6
Q41	F-4
Q42	E-4
Q43	D-3
Q44	D-2
Q45	E-4
Q46	E-5
Q47	D-6
Q48	C-6
Q49	D-4
Q50	D-5
Q51	C-5
Q52	B-5
Q53	E-8
Q58	E-7
Q59	D-7
Q60	B-6
Q61	A-6
Q62	A-6
Q63	D-7
Q64	B-7
Q65	C-7
Q66	B-7
Q67	B-8
Q68	A-7
Q69	C-7
Q70	C-8
Q71	D-9
Q72	C-8
Q73	C-9
Q74	E-7
Q75	E-9
Q76	E-9
Q77	B-8
Q78	A-9
Q79	A-8
Q80	B-9
Q81	B-10
Q82	A-10
Q83	B-10
Q84	C-10
Q85	B-10
Q86	G-10
Q87	F-10
Q88	F-12
Q89	F-11
Q90	F-11
Q91	E-11
Q92	E-10
Q93	D-10
Q94	D-11
Q95	C-5
Q97	C-12
Q98	C-10
Q100	C-3
Q101	C-1
Q102	E-7
Q103	E-6
Q104	F-7
Q105	C-12
Q106	B-11
Q107	E-3
Q108	A-4
Q109	D-2
Q110	E-3
Q111	D-2
Q112	D-5
Q113	D-5
Q114	B-4
Q115	G-10
Q116	D-11
Q117	D-11
Q118	C-1
Q119	D-1
Q120	D-1
Q121	C-5
Q122	F-3
Q123	C-6
Q130	D-10
Q131	E-7
Q133	A-9
RV1	A-2
RV2	A-4
RV4	D-5
RV5	B-5
RV6	A-5
RV7	A-7
RV8	C-7
RV9	C-8
RV10	D-8
RV11	F-8
RV12	A-8
RV13	B-9
RV14	A-9
RV15	A-10
RV16	G-9
RV17	E-11
RV18	E-11
RV20	B-20
RV21	C-10
RV22	B-7
S1	A-8
S2	E-10
S3	C-11
TP1	D-7
TP2	A-6
TP3	C-7
TP4	B-8
TP5	C-9
TP6	E-6
TP7	A-5



1-643-919-12 COMPONENT SIDE



1-643-919-12 SOLDERING SIDE

IE-39/39P (1-643-919-12)

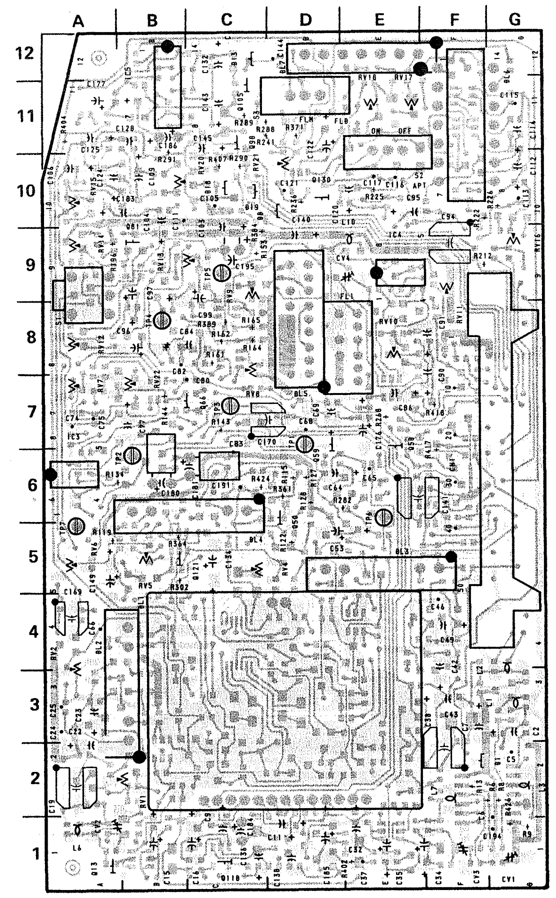
CN1 F-6
CV1 G-1
CV2 A-1
CV3 F-1
CV4 D-9
DL1 B-4
DL2 A-4
DL3 E-5
DL4 C-5
DL5 D-8
DL6 G-12
DL7 D-12
D1 G-2
D3 B-8
D4 B-8
D5 C-10
D6 C-10
D7 E-11
D8 D-10
D9 A-10
D10 C-2
D11 D-5
D12 A-5
D13 C-12
D14 A-2
D15 B-7
D18 C-10
D19 C-10
D20 D-1
D30 F-8
D31 F-7
FL1 D-9
IC1 G-2
IC2 E-6
IC3 A-7
IC4 D-9
IC5 B-12
IC6 D-10
IC7 C-4
IC8 C-1
Q1 F-3
Q12 B-1
Q13 A-1
Q14 A-2
Q15 A-2
Q16 A-3
Q19 B-3
Q20 C-2
Q22 A-4
Q34 E-1
Q35 E-1
Q36 E-2
Q38 D-6
Q39 E-6
Q40 F-6
Q41 F-4
Q42 E-4
Q43 D-3
Q44 D-2
Q45 E-4
Q46 E-5
Q47 D-6
Q48 C-6
Q49 D-4
Q50 D-5
Q51 C-5
Q52 B-5
Q53 E-8
Q58 E-7
Q59 D-7
Q60 B-6
Q61 A-6
Q62 A-6
Q63 D-7
Q64 B-7
Q65 C-7
Q66 B-7
Q67 B-8
Q68 A-7
Q69 C-7
Q70 C-8
Q71 D-9
Q72 C-8
Q73 C-9
Q74 E-7
Q75 E-9
Q76 E-9
Q77 B-8
Q78 A-9
Q79 A-8
Q80 B-9
Q81 B-10
Q82 A-10
Q83 B-10
Q84 C-10
Q85 B-10
Q86 G-10
Q87 F-10
Q88 F-12
Q89 F-11
Q90 F-11
Q91 E-11
Q92 E-10
Q93 D-10
Q94 D-11
Q95 C-5
Q97 C-12
Q98 C-10
Q100 C-3
Q101 C-1
Q102 E-7
Q103 E-6
Q104 F-7
Q105 C-12
Q106 B-11
Q107 E-3
Q108 A-4
Q109 D-2
Q110 E-3
Q111 D-2
Q112 D-5
Q113 D-5
Q114 B-4
Q115 G-10
Q116 D-11
Q117 D-11
Q118 C-1
Q119 D-1
Q120 D-1
Q121 C-5
Q122 F-3
Q123 C-6
Q130 D-10
Q131 E-7
Q133 A-9
RV1 A-2
RV2 A-4
RV4 D-5
RV5 B-5
RV6 A-5
RV7 A-7
RV8 C-7
RV9 C-8
RV10 D-8
RV11 F-8
RV12 A-8
RV13 B-9
RV14 A-9
RV15 A-10
RV16 G-9
RV17 E-11
RV18 E-11
RV20 B-20
RV21 C-10
RV22 B-7
S1 A-8
S2 E-10
S3 C-11
TP1 D-7
TP2 A-6
TP3 C-7
TP4 B-8
TP5 C-9
TP6 E-6
TP7 A-5

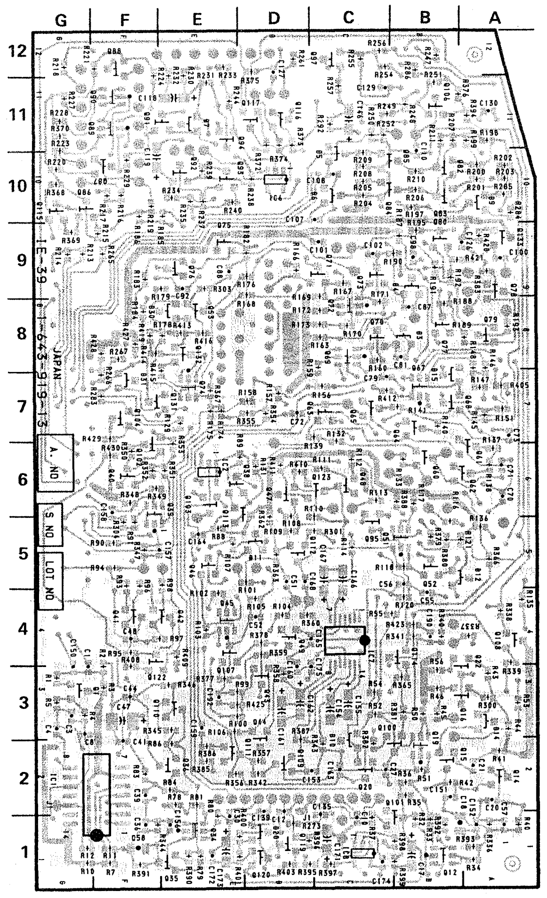
Ser No.	
10153-	(UC)
30106-	(J)
40153-	(EK)

IE-39/39P BOARD

IE - 39 / 39P (1 - 643 - 919 - 13)

CN1	F - 6
CV1	G - 1
CV2	A - 1
CV3	F - 1
CV4	D - 9
DL1	B - 4
DL2	A - 4
DL3	E - 5
DL4	C - 5
DL5	D - 8
DL6	G - 12
DL7	D - 12
D1	G - 2
D3	B - 8
D4	B - 8
D5	C - 10
D6	C - 10
D7	E - 11
D8	D - 10
D9	A - 10
D10	C - 2
D11	D - 5
D12	A - 5
D13	C - 12
D14	A - 2
D15	B - 7
D18	C - 10
D19	C - 10
D20	D - 1
D30	F - 8
D31	F - 7
FL1	D - 9
IC1	G - 2
IC2	E - 6
IC3	A - 7
IC4	D - 9
IC5	B - 12
IC6	D - 10
IC7	C - 4
IC8	C - 1
Q1	F - 3
Q12	B - 1
Q13	A - 1
Q14	A - 2
Q15	A - 2
Q16	A - 3
Q19	B - 3
Q20	C - 2
Q22	A - 4
Q34	E - 1
Q35	E - 1
Q36	E - 2
Q38	D - 6
Q39	E - 6
Q40	F - 6
Q41	F - 4
Q42	E - 4
Q43	D - 3
Q44	D - 2
Q45	E - 4
Q46	E - 5
Q47	D - 6
Q48	C - 6
Q49	D - 4
Q50	D - 5
Q51	C - 5
Q52	B - 5
Q53	E - 8
Q58	E - 7
Q59	D - 7
Q60	B - 6
Q61	A - 6
Q62	A - 6
Q63	D - 7
Q64	B - 7
Q65	C - 7
Q66	B - 7
Q67	B - 8
Q68	A - 7
Q69	C - 7
Q70	C - 8
Q71	D - 9
Q72	C - 8
Q73	C - 9
Q74	E - 7
Q75	E - 9
Q76	E - 9
Q77	B - 8
Q78	A - 9
Q79	A - 8
Q80	B - 9
Q81	B - 10
Q82	A - 10
Q83	B - 10
Q84	C - 10
Q85	B - 10
Q86	G - 10
Q87	F - 10
Q88	F - 12
Q89	F - 11
Q90	F - 11
Q91	E - 11
Q92	E - 10
Q93	D - 10
Q94	D - 11
Q95	C - 5
Q97	C - 12
Q98	C - 10
Q100	C - 3
Q101	C - 1
Q102	E - 7
Q103	E - 6
Q104	F - 7
Q105	C - 12
Q106	B - 11
Q107	E - 3
Q108	A - 4
Q109	D - 2
Q110	E - 3
Q111	D - 2
Q112	D - 5
Q113	D - 5
Q114	B - 4
Q115	G - 10
Q116	D - 11
Q117	D - 11
Q118	C - 1
Q121	C - 5
Q122	F - 3
Q123	C - 6
Q130	D - 10
Q131	E - 7
Q133	A - 9
RV1	A - 2
RV2	A - 4
RV4	D - 5
RV5	B - 5
RV6	A - 5
RV7	A - 7
RV8	C - 7
RV9	C - 8
RV10	D - 8
RV11	F - 8
RV12	A - 8
RV13	B - 9
RV14	A - 9
RV15	A - 10
RV16	G - 9
RV17	E - 11
RV18	E - 11
RV20	B - 20
RV21	C - 10
RV22	B - 7
S1	A - 8
S2	E - 10
S3	C - 11
TP1	D - 7
TP2	A - 6
TP3	C - 7
TP4	B - 8
TP5	C - 9
TP6	E - 6
TP7	A - 5



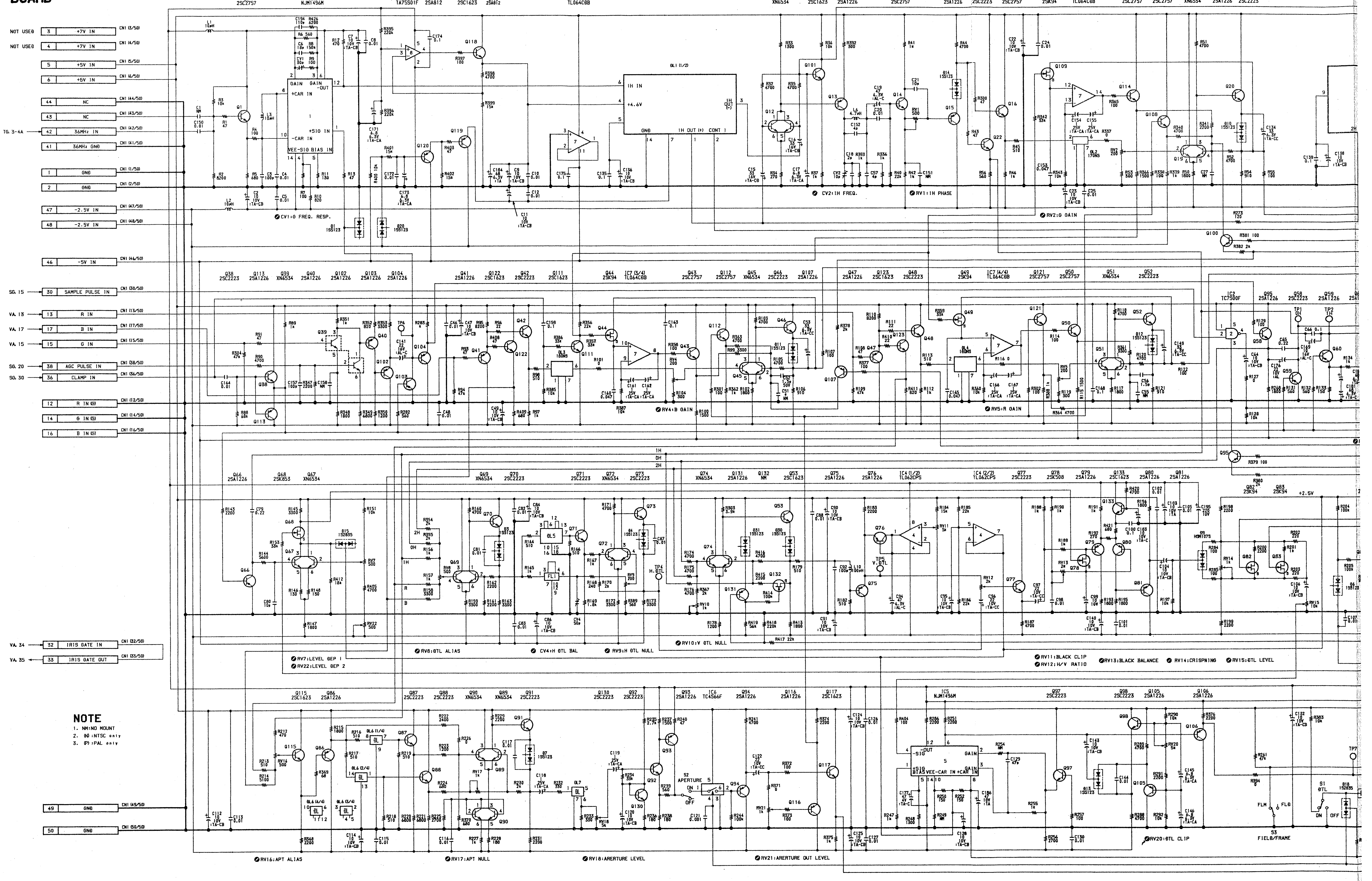


1-643-919-13 SOLDERING SIDE

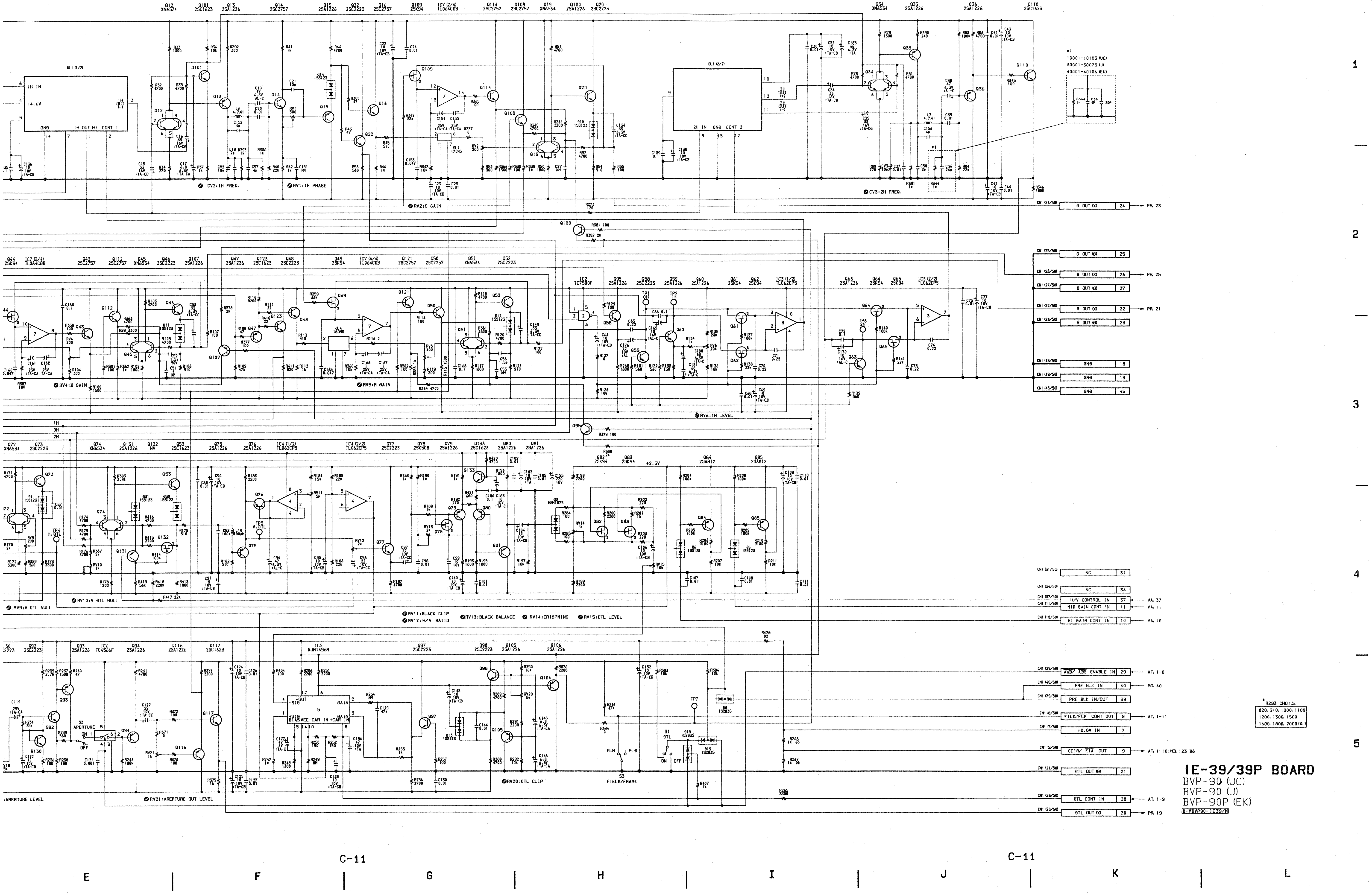
IE - 39 / 39P (1 - 643 - 919 - 13)

CN1	F - 6
CV1	G - 1
CV2	A - 1
CV3	F - 1
CV4	D - 9
DL1	B - 4
DL2	A - 4
DL3	E - 5
DL4	C - 5
DL5	D - 8
DL6	G - 12
DL7	D - 12
D1	G - 2
D3	B - 8
D4	B - 8
D5	C - 10
D6	C - 10
D7	E - 11
D8	D - 10
D9	A - 10
D10	C - 2
D11	D - 5
D12	A - 5
D13	C - 12
D14	A - 2
D15	B - 7
D18	C - 10
D19	C - 10
D20	D - 1
D30	F - 8
D31	F - 7
FL1	D - 9
IC1	G - 2
IC2	E - 6
IC3	A - 7
IC4	D - 9
IC5	B - 12
IC6	D - 10
IC7	C - 4
IC8	C - 1
Q1	F - 3
Q12	B - 1
Q13	A - 1
Q14	A - 2
Q15	A - 2
Q16	A - 3
Q19	B - 3
Q20	C - 2
Q22	A - 4
Q34	E - 1
Q35	E - 1
Q36	E - 2
Q38	D - 6
Q39	E - 6
Q40	F - 6
Q41	F - 4
Q42	E - 4
Q43	D - 3
Q44	D - 2
Q45	E - 4
Q46	E - 5
Q47	D - 6
Q48	C - 6
Q49	D - 4
Q50	D - 5
Q51	C - 5
Q52	B - 5
Q53	E - 8
Q58	E - 7
Q59	D - 7
Q60	B - 6
Q61	A - 6
Q62	A - 6
Q63	D - 7
Q64	B - 7
Q65	C - 7
Q66	B - 7
Q67	B - 8
Q68	A - 7
Q69	C - 7
Q70	C - 8
Q71	D - 9
Q72	C - 8
Q73	C - 9
Q74	E - 7
Q75	E - 9
Q76	E - 9
Q77	B - 8
Q78	A - 9
Q79	A - 8
Q80	B - 9
Q81	B - 10
Q82	A - 10
Q83	B - 10
Q84	C - 10
Q85	B - 10
Q86	G - 10
Q87	F - 10
Q88	F - 12
Q89	F - 11
Q90	F - 11
Q91	E - 11
Q92	E - 10
Q93	D - 10
Q94	D - 11
Q95	C - 5
Q97	C - 12
Q98	C - 10
Q100	C - 3
Q101	C - 1
Q102	E - 7
Q103	E - 6
Q104	F - 7
Q105	C - 12
Q106	B - 11
Q107	E - 3
Q108	A - 4
Q109	D - 2
Q110	E - 3
Q111	D - 2
Q112	D - 5
Q113	D - 5
Q114	B - 4
Q115	G - 10
Q116	D - 11
Q117	D - 11
Q118	C - 1
Q121	C - 5
Q122	F - 3
Q123	C - 6
Q130	D - 10
Q131	E - 7
Q133	A - 9
RV1	A - 2
RV2	A - 4
RV4	D - 5
RV5	B - 5
RV6	A - 5
RV7	A - 7
RV8	C - 7
RV9	C - 8
RV10	D - 8
RV11	F - 8
RV12	A - 8
RV13	B - 9
RV14	A - 9
RV15	A - 10
RV16	G - 9
RV17	E - 11
RV18	E - 11
RV20	B - 20
RV21	C - 10
RV22	B - 7
S1	A - 8
S2	E - 10
S3	C - 11
TP1	D - 7
TP2	A - 6
TP3	C - 7
TP4	B - 8
TP5	C - 9
TP6	E - 6
TP7	A - 5

IE-39/39P BOARD


NOT USED 3 +7V IN CN1 (3/50)
NOT USED 4 +7V IN CN1 (4/50)
5 +5V IN CN1 (5/50)
6 +5V IN CN1 (6/50)
44 NC CN1 (44/50)
43 NC CN1 (43/50)
TG. 3-4A 42 36MHz IN CN1 (42/50)
41 36MHz GND CN1 (41/50)
1 GND CN1 (1/50)
2 GND CN1 (2/50)
47 -2.5V IN CN1 (47/50)
48 -2.5V IN CN1 (48/50)
46 -5V IN CN1 (46/50)
SG. 15 30 SAMPLE PULSE IN CN1 (30/50)
VA. 13 13 R IN CN1 (13/50)
VA. 17 17 B IN CN1 (17/50)
VA. 15 15 G IN CN1 (15/50)
SG. 20 38 AGC PULSE IN CN1 (38/50)
SG. 30 36 CLAMP IN CN1 (36/50)
12 R IN (E) CN1 (12/50)
14 G IN (E) CN1 (14/50)
16 B IN (E) CN1 (16/50)
VA. 34 32 IRIS GATE IN CN1 (32/50)
VA. 35 33 IRIS GATE OUT CN1 (33/50)
49 GND CN1 (49/50)
50 GND CN1 (50/50)
CV1:G FREQ. RESP.
CV2:1H FREQ.
RV1:1H PHASE
RV2:G GAIN
RV4:B GAIN
RV5:R GAIN
RV7:LEVEL DEP 1
RV22:LEVEL DEP 2
RV8:DTL ALIAS
CV4:H DTL BAL
RV9:H DTL NULL
RV10:V DTL NULL
RV11:BLACK CLIP
RV12:H/V RATIO
RV13:BLACK BALANCE
RV14:CRISPNING
RV15:DTL LEVEL
RV16:APT ALIAS
RV17:APT NULL
RV18:ARERTURE LEVEL
RV21:ARERTURE OUT LEVEL
RV20:DTL CLIP
S2 APERTURE ON OFF
S1 DTL ON OFF
S3 FIELD/FRAME FLM FLG
DL1 (1/2)
IC1 NJM1496M
IC5 NJM1496M
IC2 TC7S00F
IC6 TC4S66F
IC8 TA75S01F
IC7 (1/4) TL064CDB
IC7 (2/4) TL064CDB
IC7 (3/4) TL064CDB
IC7 (4/4) TL064CDB
IC4 (1/2) TL062CPS
IC4 (2/2) TL062CPS

NOTE
1. NM:NO MOUNT
2. (N) :NTSC only
3. (P) :PAL only


IL1 (1/2)
1H IN
+4.6V
GND
1H OUT (+)
CONT 1
1H OUT (-)
IL1 (2/2)
2H IN
GND
CONT 2
2H OUT (+)
2H OUT (-)
IC7 (2/4) TL064CDB
IC7 (3/4) TL064CDB
IC7 (4/4) TL064CDB
IC2 TC7S00F
IC3 (1/2) TL062CPS
IC3 (2/2) TL062CPS
IC4 (1/2) TL062CPS
IC4 (2/2) TL062CPS
IC5 NJM1496M
IC6 TC4S66F
DL2 170NS
DL4 100NS
CV2:1H FREQ.
RV1:1H PHASE
RV2:G GAIN
CV3:2H FREQ.
RV4:B GAIN
RV5:R GAIN
RV6:1H LEVEL
RV9:1H DTL NULL
RV10:V DTL NULL
RV11:BLACK CLIP
RV12:H/V RATIO
RV13:BLACK BALANCE
RV14:CRISPNING
RV15:DTL LEVEL
RV20:DTL CLIP
RV21:APERTURE OUT LEVEL
APERTURE LEVEL
S2 APERTURE ON OFF
S1 DTL ON OFF
S3 FIELD/FRAME FLM FLD
TP1 0H
TP2 1H
TP3 2H
TP5 V.DTL
TP6 H.DTL
TP7
1H
0H
2H
+2.5V
*1
10001-10103 (UC)
30001-30075 (J)
40001-40106 (EK)
R344 1k
C36 4P
20P
CN1 (24/50) G OUT (X) 24 PR. 23
CN1 (25/50) G OUT (G) 25
CN1 (26/50) B OUT (X) 26 PR. 25
CN1 (27/50) B OUT (G) 27
CN1 (22/50) R OUT (X) 22 PR. 21
CN1 (23/50) R OUT (G) 23
CN1 (18/50) GND 18
CN1 (19/50) GND 19
CN1 (45/50) GND 45
CN1 (31/50) NC 31
CN1 (34/50) NC 34
CN1 (37/50) H/V CONTROL IN 37 VA. 37
CN1 (11/50) MID GAIN CONT IN 11 VA. 11
CN1 (10/50) HI GAIN CONT IN 10 VA. 10
CN1 (29/50) AWB/ ABB ENABLE IN 29 AT. 1-8
CN1 (40/50) PRE BLK IN 40 SG. 40
CN1 (39/50) PRE BLK IN/OUT 39
CN1 (8/50) FILD/FLM CONT OUT 8 AT. 1-11
CN1 (7/50) +8.8V IN 7
CN1 (9/50) CCIR/ EIA OUT 9 AT. 1-10;MB. 123-B6
CN1 (21/50) DTL OUT (G) 21
CN1 (28/50) DTL CONT IN 28 AT. 1-9
CN1 (20/50) DTL OUT (X) 20 PR. 19
*R283 CHOICE
820, 910, 1000, 1100
1200, 1300, 1500
1600, 1800, 2000 (Ω)
1
2
3
4
5
C-11
C-11
E
F
G
H
I
J
K
L

IE-39/39P BOARD

BVP-90 (UC)
BVP-90 (J)
BVP-90P (EK)

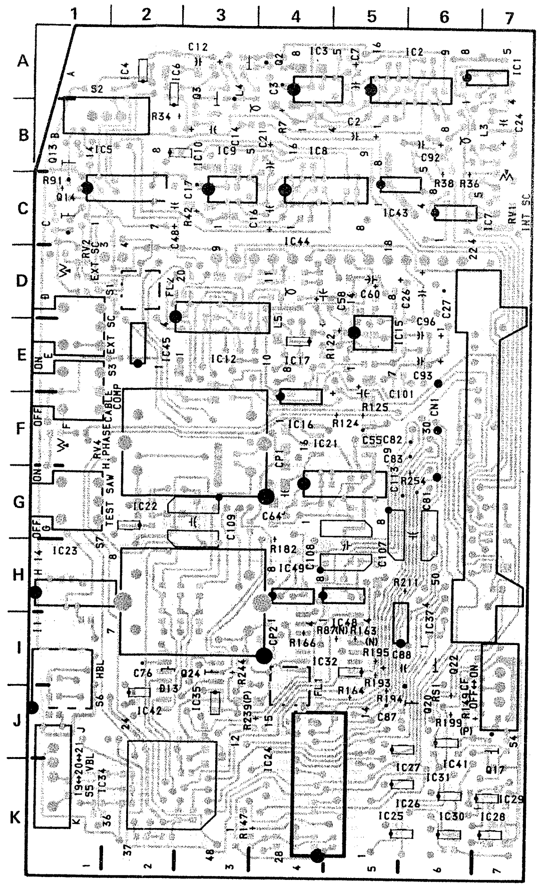
B-*BVP90-IE39/M

Ser No.10001-10034 (UC)
30001-30020 (J)
40001-40047 (EK)

SG-206/206P BOARD

SG - 206 / 206P (1 - 643 - 916 - 11)

CN1	F - 6
CP1	F - 4
CP2	I - 4
D1	B - 7
D5	K - 7
D9	E - 4
D11	D - 5
D12	K - 3
D13	J - 2
FL2	D - 2
IC1	A - 7
IC2	A - 6
IC3	A - 4
IC4	A - 2
IC5	B - 1
IC6	A - 2
IC7	C - 7
IC8	B - 4
IC9	B - 3
IC10	B - 3
IC12	E - 3
IC14	D - 3
IC15	E - 5
IC16	F - 4
IC17	E - 4
IC20	F - 5
IC21	F - 4
IC22	G - 2
IC23	H - 1
IC24	K - 4
IC25	K - 5
IC26	K - 6
IC27	K - 6
IC28	K - 7
IC29	K - 7
IC30	K - 6
IC31	K - 6
IC32	I - 4
IC33	I - 3
IC34	K - 1
IC35	J - 3
IC37	I - 6
IC41	J - 6
IC42	J - 2
IC43	C - 5
IC44	C - 2
IC45	E - 2
IC46	G - 7
IC47	I - 5
IC48	I - 5
IC49	H - 4
Q1	A - 6
Q2	A - 4
Q3	A - 3
Q4	A - 2
Q5	B - 7
Q6	C - 7
Q13	B - 1
Q14	C - 1
Q15	D - 2
Q17	K - 7
Q18	H - 4
Q19	B - 6
Q20	J - 6
Q22	I - 6
Q23	K - 1
Q24	I - 3
Q25	J - 4
RV1	C - 7
RV2	D - 1
RV4	F - 1
S1	D - 1
S2	A - 1
S3	E - 2
S4	J - 7
S5	K - 1
S6	J - 1
S7	G - 1


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
K
IC1
IC2
IC3
IC4
IC5
IC8
IC9
IC12
IC15
IC16
IC17
IC21
IC22
IC23
IC24
IC25
IC26
IC27
IC30
IC31
IC32
IC34
IC41
IC42
IC43
IC44
IC45
IC49
S2
RV1
CN1
CP1
CP2
FL2

1

2

3

4

5

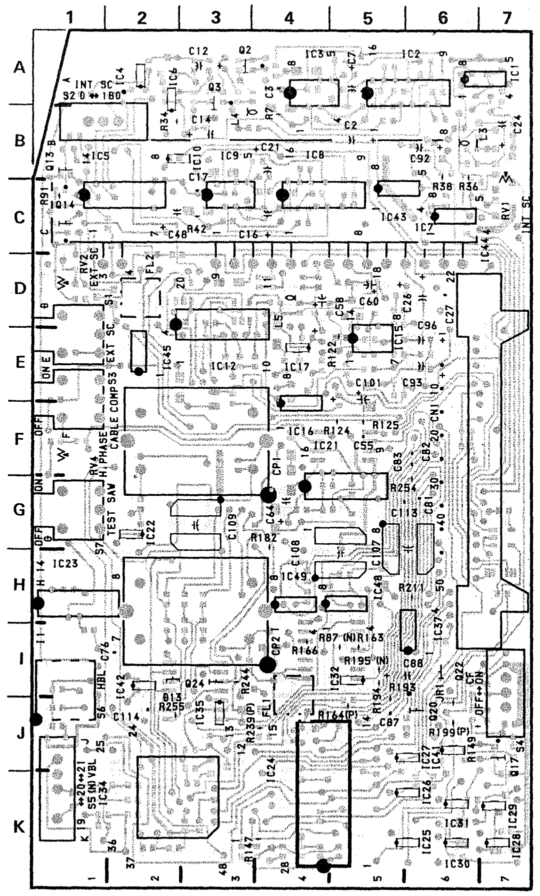
A B C D E F G H

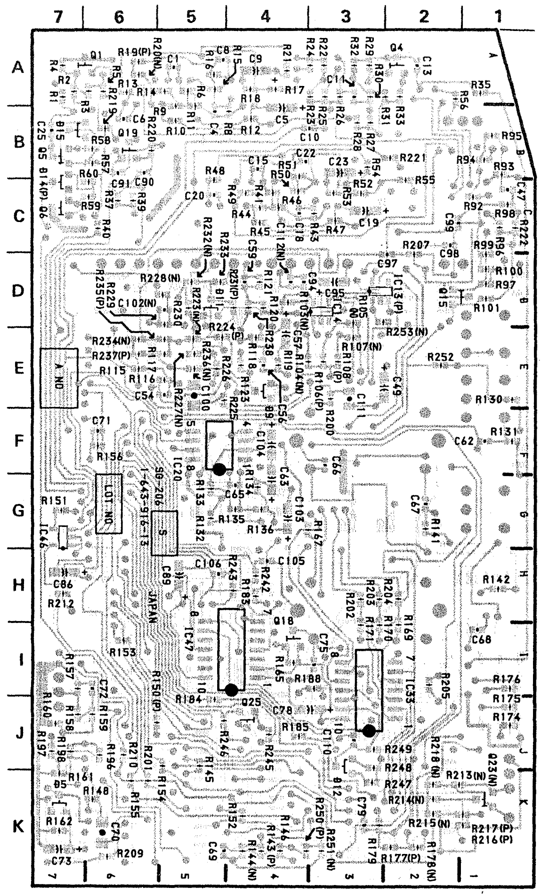
Ser No.	
10153-	(UC)
30106-	(J)
40153-	(EK)

SG-206/206P BOARD

SG - 206 / 206P (1 - 643 - 916 - 13)

CN1	F - 6
CP1	F - 4
CP2	I - 4
D1	B - 7
D5	K - 7
D9	E - 4
D11	D - 5
D12	K - 3
D13	J - 2
FL2	D - 2
IC1	A - 7
IC2	A - 6
IC3	A - 4
IC4	A - 2
IC5	B - 1
IC6	A - 2
IC7	C - 7
IC8	B - 4
IC9	B - 3
IC10	B - 3
IC12	E - 3
IC14	D - 3
IC15	E - 5
IC16	F - 4
IC17	E - 4
IC20	F - 5
IC21	F - 4
IC22	G - 2
IC23	H - 1
IC24	K - 4
IC25	K - 5
IC26	K - 6
IC27	K - 6
IC28	K - 7
IC29	K - 7
IC30	K - 6
IC31	K - 6
IC32	I - 4
IC33	I - 3
IC34	K - 1
IC35	J - 3
IC37	I - 6
IC41	J - 6
IC42	I - 2
IC43	C - 5
IC44	C - 2
IC45	E - 2
IC46	G - 7
IC47	I - 5
IC48	I - 5
IC49	H - 4
Q1	A - 6
Q2	A - 4
Q3	A - 3
Q4	A - 2
Q5	B - 7
Q6	C - 7
Q13	B - 1
Q14	C - 1
Q15	D - 2
Q17	K - 7
Q18	H - 4
Q19	B - 6
Q20	J - 6
Q22	I - 6
Q23	K - 1
Q24	I - 3
Q25	J - 4
RV1	C - 7
RV2	D - 1
RV4	F - 1
S1	D - 1
S2	A - 1
S3	E - 2
S4	J - 7
S5	K - 1
S6	J - 1
S7	G - 1





1-643-916-13 SOLDERING SIDE

SG - 206 / 206P (1 - 643 - 916 - 13)

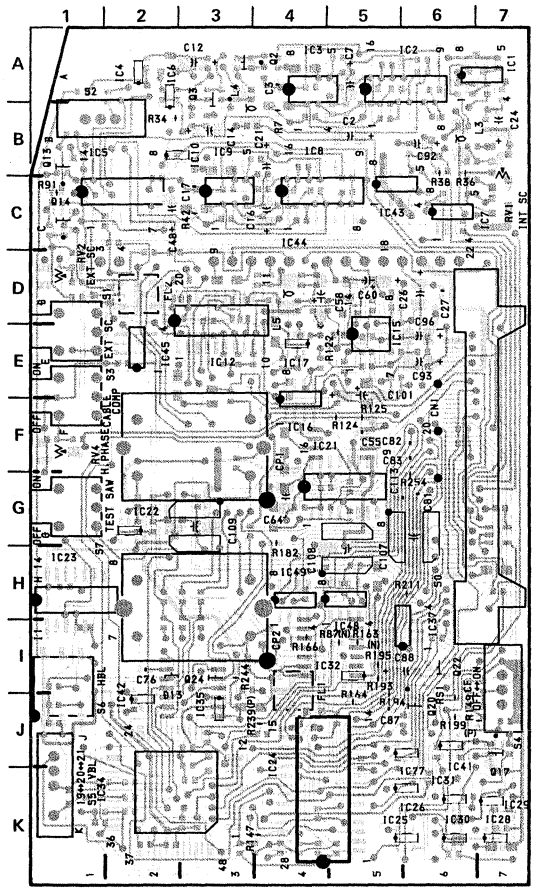
CN1	F - 6
CP1	F - 4
CP2	I - 4
D1	B - 7
D5	K - 7
D9	E - 4
D11	D - 5
D12	K - 3
D13	J - 2
FL2	D - 2
IC1	A - 7
IC2	A - 6
IC3	A - 4
IC4	A - 2
IC5	B - 1
IC6	A - 2
IC7	C - 7
IC8	B - 4
IC9	B - 3
IC10	B - 3
IC12	E - 3
IC14	D - 3
IC15	E - 5
IC16	F - 4
IC17	E - 4
IC20	F - 5
IC21	F - 4
IC22	G - 2
IC23	H - 1
IC24	K - 4
IC25	K - 5
IC26	K - 6
IC27	K - 6
IC28	K - 7
IC29	K - 7
IC30	K - 6
IC31	K - 6
IC32	I - 4
IC33	I - 3
IC34	K - 1
IC35	J - 3
IC37	I - 6
IC41	J - 6
IC42	I - 2
IC43	C - 5
IC44	C - 2
IC45	E - 2
IC46	G - 7
IC47	I - 5
IC48	I - 5
IC49	H - 4
Q1	A - 6
Q2	A - 4
Q3	A - 3
Q4	A - 2
Q5	B - 7
Q6	C - 7
Q13	B - 1
Q14	C - 1
Q15	D - 2
Q17	K - 7
Q18	H - 4
Q19	B - 6
Q20	J - 6
Q22	I - 6
Q23	K - 1
Q24	I - 3
Q25	J - 4
RV1	C - 7
RV2	D - 1
RV4	F - 1
S1	D - 1
S2	A - 1
S3	E - 2
S4	J - 7
S5	K - 1
S6	J - 1
S7	G - 1

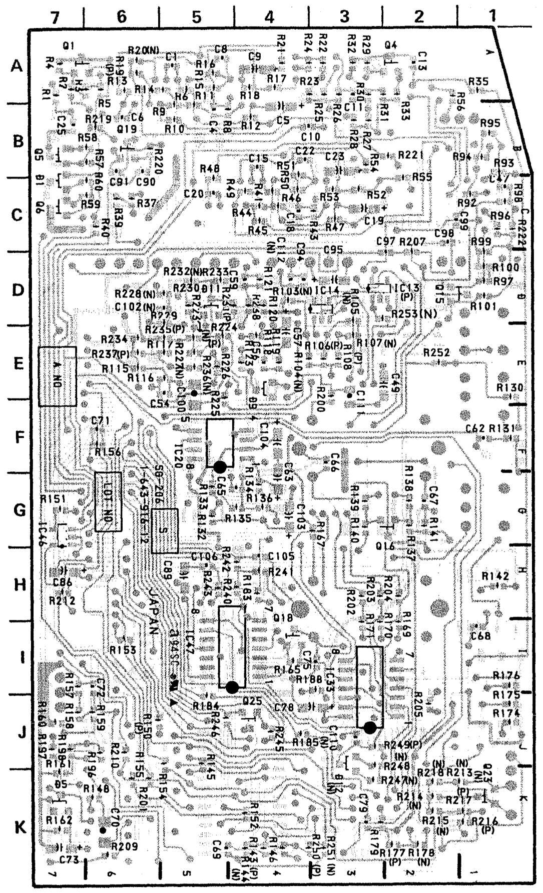
Ser No.10035-10152 (UC)
30021-30105 (J)
40048-40152 (EK)

SG-206/206P BOARD

SG - 206 / 206P (1 - 643 - 916 - 12)

CN1	F - 6
CP1	F - 4
CP2	I - 4
D1	B - 7
D5	K - 7
D9	E - 4
D11	D - 5
D12	K - 3
D13	J - 2
FL2	D - 2
IC1	A - 7
IC2	A - 6
IC3	A - 4
IC4	A - 2
IC5	B - 1
IC6	A - 2
IC7	C - 7
IC8	B - 4
IC9	B - 3
IC10	B - 3
IC12	E - 3
IC14	D - 3
IC15	E - 5
IC16	F - 4
IC17	E - 4
IC20	F - 5
IC21	F - 4
IC22	G - 2
IC23	H - 1
IC24	K - 4
IC25	K - 5
IC26	K - 6
IC27	K - 6
IC28	K - 7
IC29	K - 7
IC30	K - 6
IC31	K - 6
IC32	I - 4
IC33	I - 3
IC34	K - 1
IC35	J - 3
IC37	I - 6
IC41	J - 6
IC42	J - 2
IC43	C - 5
IC44	C - 2
IC45	E - 2
IC46	G - 7
IC47	I - 5
IC48	I - 5
IC49	H - 4
Q1	A - 6
Q2	A - 4
Q3	A - 3
Q4	A - 2
Q5	B - 7
Q6	C - 7
Q13	B - 1
Q14	C - 1
Q15	D - 2
Q17	K - 7
Q18	H - 4
Q19	B - 6
Q20	J - 6
Q22	I - 6
Q23	K - 1
Q24	I - 3
Q25	J - 4
RV1	C - 7
RV2	D - 1
RV4	F - 1
S1	D - 1
S2	A - 1
S3	E - 2
S4	J - 7
S5	K - 1
S6	J - 1
S7	G - 1



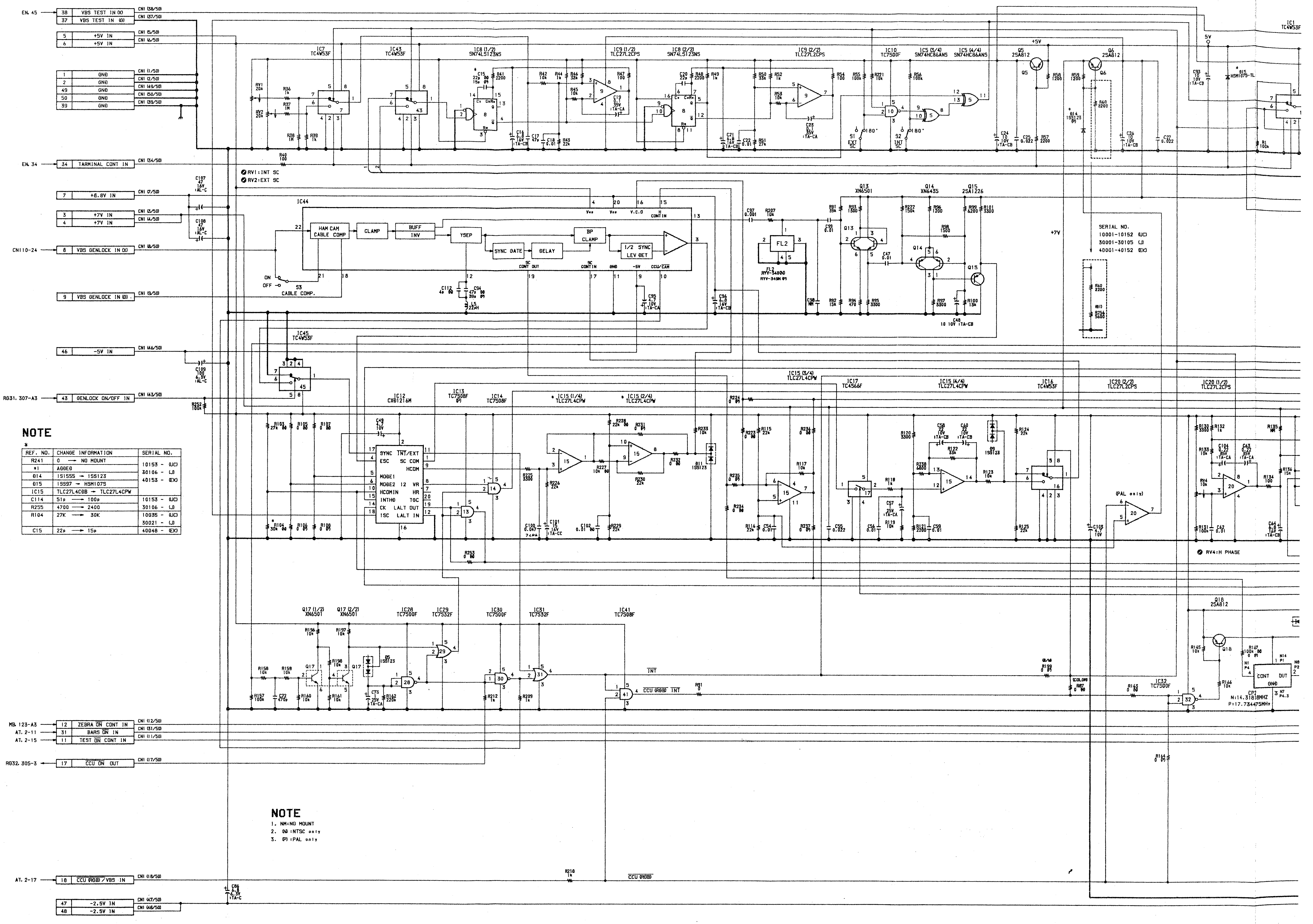


1-643-916-12 SOLDERING SIDE

SG - 206 / 206P (1 - 643 - 916 - 12)

CN1	F - 6
CP1	F - 4
CP2	I - 4
D1	B - 7
D5	K - 7
D9	E - 4
D11	D - 5
D12	K - 3
D13	J - 2
FL2	D - 2
IC1	A - 7
IC2	A - 6
IC3	A - 4
IC4	A - 2
IC5	B - 1
IC6	A - 2
IC7	C - 7
IC8	B - 4
IC9	B - 3
IC10	B - 3
IC12	E - 3
IC14	D - 3
IC15	E - 5
IC16	F - 4
IC17	E - 4
IC20	F - 5
IC21	F - 4
IC22	G - 2
IC23	H - 1
IC24	K - 4
IC25	K - 5
IC26	K - 6
IC27	K - 6
IC28	K - 7
IC29	K - 7
IC30	K - 6
IC31	K - 6
IC32	I - 4
IC33	I - 3
IC34	K - 1
IC35	J - 3
IC37	I - 6
IC41	J - 6
IC42	J - 2
IC43	C - 5
IC44	C - 2
IC45	E - 2
IC46	G - 7
IC47	I - 5
IC48	I - 5
IC49	H - 4
Q1	A - 6
Q2	A - 4
Q3	A - 3
Q4	A - 2
Q5	B - 7
Q6	C - 7
Q13	B - 1
Q14	C - 1
Q15	D - 2
Q17	K - 7
Q18	H - 4
Q19	B - 6
Q20	J - 6
Q22	I - 6
Q23	K - 1
Q24	I - 3
Q25	J - 4
RV1	C - 7
RV2	D - 1
RV4	F - 1
S1	D - 1
S2	A - 1
S3	E - 2
S4	J - 7
S5	K - 1
S6	J - 1
S7	G - 1

SG-206/206P BOARD


EN. 45
38 VBS TEST IN (N)
37 VBS TEST IN (P)
5 +5V IN
6 +5V IN
1 GND
2 GND
49 GND
50 GND
39 GND
EN. 34
34 TARMINAL CONT IN
7 +6.8V IN
3 +7V IN
4 +7V IN
CN110-24
8 VBS GENLOCK IN (N)
9 VBS GENLOCK IN (P)
46 -5V IN
RG31. 307-A3
43 GENLOCK ON/OFF IN
MB. 123-A3
12 ZEBRA ON CONT IN
AT. 2-11
31 BARS ON IN
AT. 2-15
11 TEST ON CONT IN
RG32. 305-3
17 CCU ON OUT
AT. 2-17
18 CCU (RGB)/VBS IN
47 -2.5V IN
48 -2.5V IN
IC7 TC4W53F
IC43 TC4W53F
IC8 (1/2) SN74LS123NS
IC9 (1/2) TLC27L2CPS
IC8 (2/2) SN74LS123NS
IC9 (2/2) TLC27L2CPS
IC10 TC7S00F
IC5 (3/4) SN74HC86ANS
IC5 (4/4) SN74HC86ANS
Q5 2SA812
Q6 2SA812
IC1 TC4W53F
RV1:INT SC
RV2:EXT SC
IC44
HAM CAM CABLE COMP
CLAMP
BUFF INV
YSEP
SYNC GATE
GELAY
BP CLAMP
1/2 SYNC LEV DET
S3 CABLE COMP.
ON
OFF
FL2
Q13 XN6501
Q14 XN6435
Q15 2SA1226
SERIAL NO.
10001-10152 (UC)
30001-30105 (J)
40001-40152 (EK)
+7V
IC45 TC4W53F
IC12 CXD1216M
IC13 TC7S08F (P)
IC14 TC7S08F
IC15 (1/4) TLC27L4CPW
IC15 (2/4) TLC27L4CPW
IC15 (3/4) TLC27L4CPW
IC17 TC4S66F
IC15 (4/4) TLC27L4CPW
IC16 TC4W53F
IC20 (2/2) TLC27L2CPS
IC20 (1/2) TLC27L2CPS
(PAL only)
RV4:H PHASE
Q17 (1/2) XN6501
Q17 (2/2) XN6501
IC28 TC7S00F
IC29 TC7S32F
IC30 TC7S00F
IC31 TC7S32F
IC41 TC7S08F
INT
CCU (RGB) INT
IC32 TC7S00F
Q18 2SA812
CONT OUT
GND
N:14.31818MHz
P:17.734475MHz
CCU (RGB)

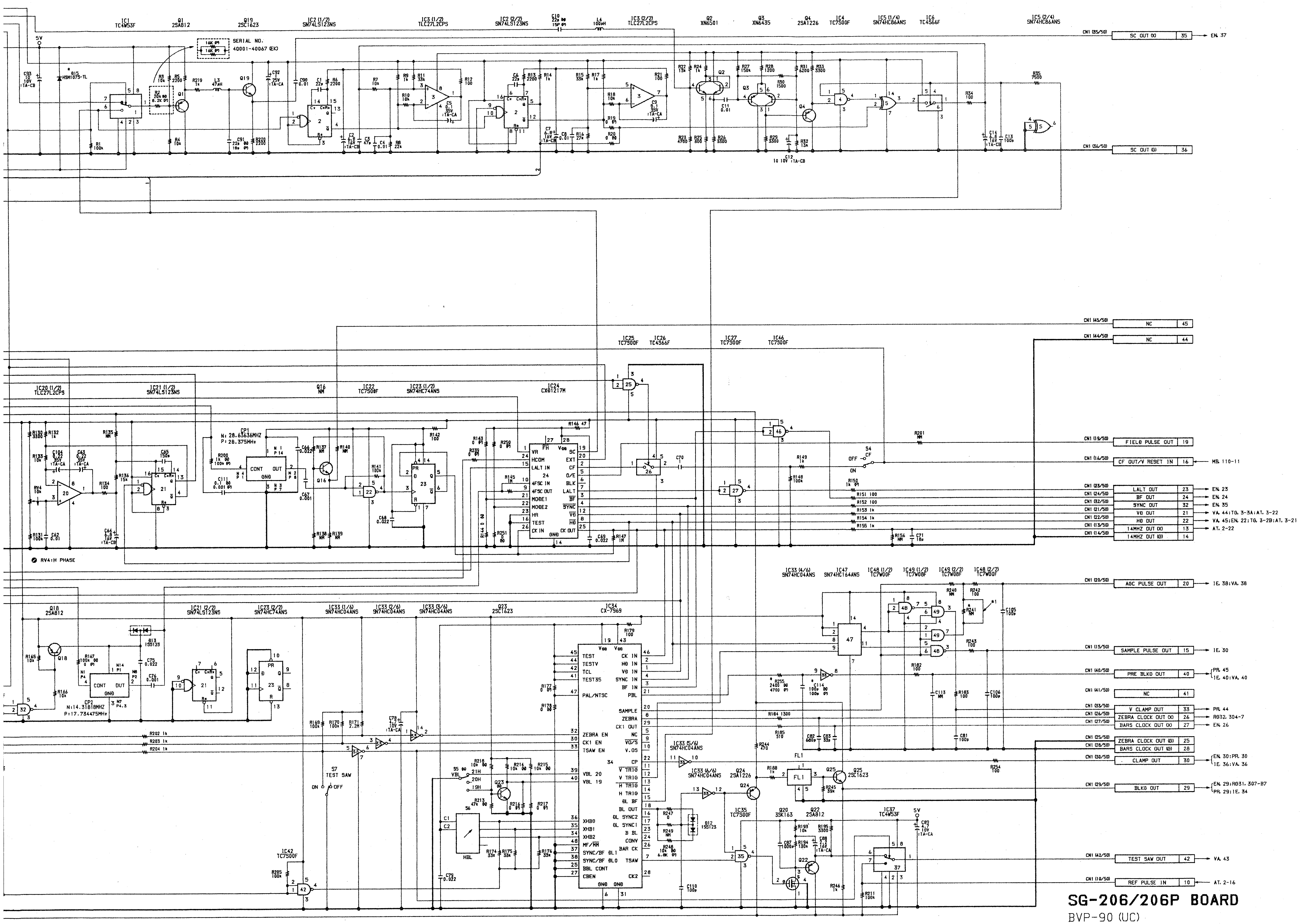
NOTE

*

REF. NO.	CHANGE INFORMATION	SERIAL NO.
R241	0 → NO MOUNT	10153 - (UC) 30106 - (J) 40153 - (EK)
*1	ADDED	
D14	1S1555 → 1SS123	
D15	1SS97 → HSM107S	
IC15	TLC27L4CDB → TLC27L4CPW	
C114	51p → 100p	10153 - (UC) 30106 - (J)
R255	4700 → 2400	
R104	27K → 30K	10035 - (UC) 30021 - (J)
C15	22p → 15p	40048 - (EK)

NOTE

1. NM:NO MOUNT
2. (N) :NTSC only
3. (P) :PAL only


CN1 (35/50) SC OUT (X) 35 → EN. 37
CN1 (36/50) SC OUT (G) 36
CN1 (45/50) NC 45
CN1 (44/50) NC 44
CN1 (19/50) FIELD PULSE OUT 19
CN1 (16/50) CF OUT/V RESET IN 16 ← MB. 110-11
CN1 (23/50) LALT OUT 23 → EN. 23
CN1 (24/50) BF OUT 24 → EN. 24
CN1 (32/50) SYNC OUT 32 → EN. 35
CN1 (21/50) VD OUT 21 → VA. 44:TG. 3-3A:AT. 3-22
CN1 (22/50) HD OUT 22 → VA. 45:EN. 22:TG. 3-2B:AT. 3-21
CN1 (13/50) 14MHZ OUT (X) 13 → AT. 2-22
CN1 (14/50) 14MHZ OUT (G) 14
CN1 (20/50) AGC PULSE OUT 20 → IE. 38:VA. 38
CN1 (15/50) SAMPLE PULSE OUT 15 → IE. 30
CN1 (40/50) PRE BLKG OUT 40 → PR. 45 / IE. 40:VA. 40
CN1 (41/50) NC 41
CN1 (33/50) V CLAMP OUT 33 → PR. 44
CN1 (26/50) ZEBRA CLOCK OUT (X) 26 → RG32. 304-7
CN1 (27/50) BARS CLOCK OUT (X) 27 → EN. 26
CN1 (25/50) ZEBRA CLOCK OUT (G) 25
CN1 (28/50) BARS CLOCK OUT (G) 28
CN1 (30/50) CLAMP OUT 30 → EN. 30:PR. 30 / IE. 36:VA. 36
CN1 (29/50) BLKG OUT 29 → EN. 29:RG31. 307-B7 / PR. 29:IE. 34
CN1 (42/50) TEST SAW OUT 42 → VA. 43
CN1 (10/50) REF PULSE IN 10 ← AT. 2-16
IC24 CX01217M
IC34 CX-7969
SERIAL NO. 40001-40067 (EK)
RV4:H PHASE

SG-206/206P BOARD

BVP-90 (UC)
BVP-90 (J)
BVP-90P (EK)
B-¥BVP90-SG206/M

1
2
3
4
5

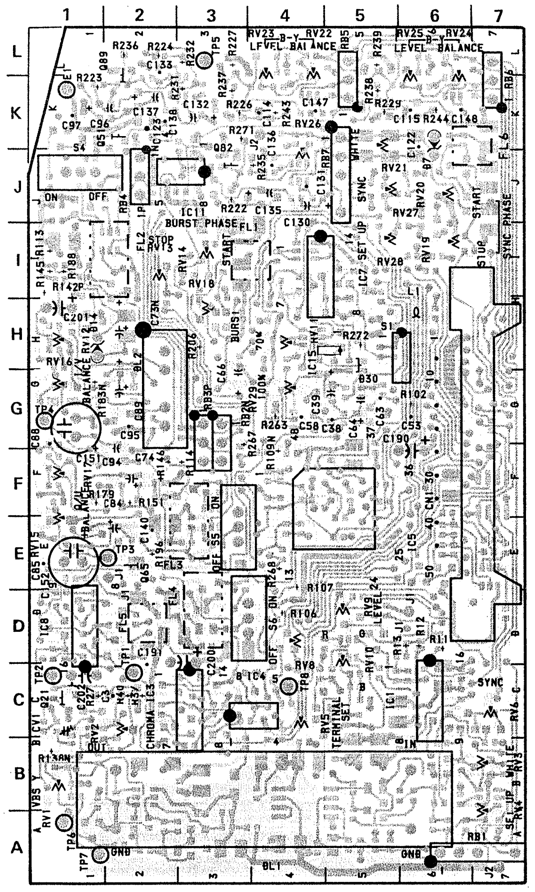
I J K L M N O P

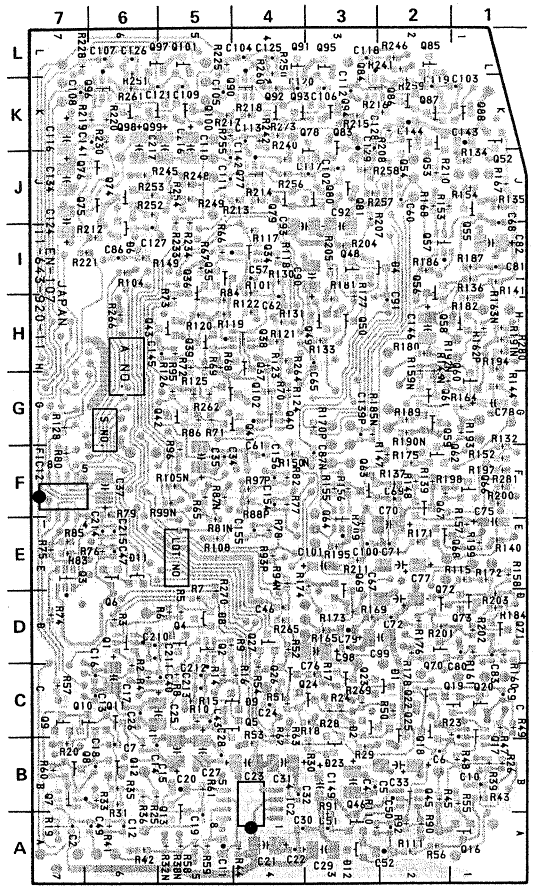
Ser No.10001-10014 (UC)
30001-30020 (J)
40001-40012 (EK)

EN-107/107P BOARD

EN - 107 / 107P (1 - 643 - 920 - 11)

CN1	F - 6
CV1	C - 1
DL1	A - 4
DL2	H - 2
D1	C - 2
D2	C - 3
D4	I - 2
D6	I - 6
D7	J - 6
D8	D - 5
D9	C - 4
D11	E - 6
D12	A - 3
D14	H - 1
D23	B - 3
D30	G - 5
E1	K - 1
FL1	I - 4
FL2	I - 2
FL3	E - 2
FL4	D - 2
FL5	D - 2
FL6	K - 7
IC1	C - 5
IC2	B - 4
IC3	C - 2
IC4	C - 4
IC5	E - 6
IC7	I - 5
IC8	D - 1
IC11	J - 3
IC12	F - 7
IC15	H - 4
Q1	D - 6
Q2	D - 5
Q3	E - 7
Q4	D - 5
Q5	C - 4
Q6	D - 6
Q7	B - 7
Q8	B - 6
Q9	C - 7
Q10	C - 7
Q11	C - 6
Q12	B - 5
Q13	A - 5
Q17	B - 1
Q18	B - 2
Q19	C - 1
Q20	C - 1
Q21	C - 1
Q22	C - 2
Q23	C - 3
Q24	C - 3
Q25	C - 2
Q26	C - 4
Q27	D - 4
Q34	I - 4
Q35	I - 5
Q36	I - 5
Q37	H - 4
Q38	H - 4
Q39	H - 5
Q40	G - 4
Q41	G - 4
Q42	G - 5
Q43	H - 6
Q45	B - 2
Q46	B - 3
Q48	I - 3
Q49	H - 3
Q50	H - 3
Q51	K - 1
Q52	J - 1
Q53	J - 2
Q54	J - 2
Q55	I - 1
Q56	I - 2
Q57	I - 2
Q58	H - 2
Q59	G - 2
Q60	G - 1
Q61	G - 2
Q62	F - 1
Q63	F - 3
Q64	E - 3
Q65	E - 2
Q66	F - 1
Q67	F - 2
Q68	E - 1
Q69	E - 4
Q70	C - 2
Q71	D - 1
Q72	E - 2
Q73	D - 1
Q74	J - 6
Q75	J - 7
Q76	J - 7
Q77	J - 4
Q78	K - 3
Q79	J - 4
Q80	J - 3
Q81	J - 3
Q82	K - 3
Q83	K - 3
Q84	L - 3
Q85	L - 2
Q86	K - 2
Q87	K - 2
Q88	K - 1
Q89	K - 1
Q90	K - 5
Q91	L - 4
Q92	K - 4
Q93	K - 4
Q94	K - 3
Q95	L - 3
Q96	K - 6
Q97	L - 5
Q98	K - 6
Q99	K - 6
Q100	K - 5
Q101	L - 5
Q102	G - 4
RB1	A - 7
RB2	G - 3
RB3	G - 3
RB4	J - 2
RB5	K - 5
RB6	K - 7
RB7	J - 5
RV1	A - 1
RV2	C - 1
RV3	B - 7
RV4	B - 7
RV5	C - 4
RV6	C - 7
RV8	D - 4
RV9	D - 5
RV10	D - 5
RV11	H - 4
RV12	H - 1
RV13	I - 2
RV14	I - 3
RV15	E - 1
RV16	H - 1
RV17	F - 1
RV18	I - 3
RV19	I - 6
RV20	J - 6
RV21	J - 5
RV22	K - 4
RV23	K - 4
RV24	K - 6
RV25	K - 6
RV26	K - 4
RV27	J - 6
RV28	I - 5
RV29	G - 4
S1	H - 5
S4	J - 1
S5	E - 3
S6	D - 4
TP1	D - 2
TP2	C - 1
TP3	E - 2
TP4	G - 1
TP5	K - 3
TP6	A - 1
TP7	A - 1
TP8	C - 4





1-643-920-11 SOLDERING SIDE

EN-107/

EN - 107 / 107P (1 - 643 - 920 - 11)

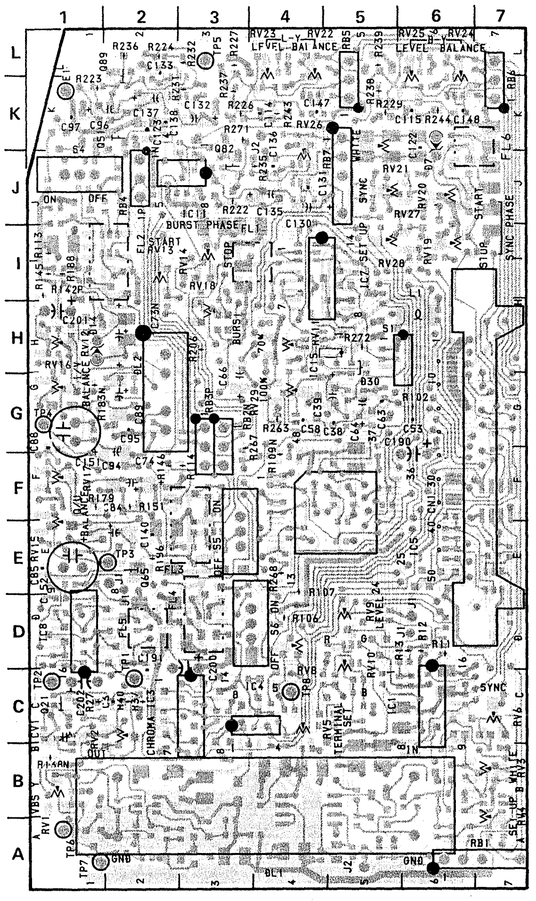
CN1	F - 6
CV1	C - 1
DL1	A - 4
DL2	H - 2
D1	C - 2
D2	C - 3
D4	I - 2
D6	I - 6
D7	J - 6
D8	D - 5
D9	C - 4
D11	E - 6
D12	A - 3
D14	H - 1
D23	B - 3
D30	G - 5
E1	K - 1
FL1	I - 4
FL2	I - 2
FL3	E - 2
FL4	D - 2
FL5	D - 2
FL6	K - 7
IC1	C - 5
IC2	B - 4
IC3	C - 2
IC4	C - 4
IC5	E - 6
IC7	I - 5
IC8	D - 1
IC11	J - 3
IC12	F - 7
IC15	H - 4
Q1	D - 6
Q2	D - 5
Q3	E - 7
Q4	D - 5
Q5	C - 4
Q6	D - 6
Q7	B - 7
Q8	B - 6
Q9	C - 7
Q10	C - 7
Q11	C - 6
Q12	B - 5
Q13	A - 5
Q17	B - 1
Q18	B - 2
Q19	C - 1
Q20	C - 1
Q21	C - 1
Q22	C - 2
Q23	C - 3
Q24	C - 3
Q25	C - 2
Q26	C - 4
Q27	D - 4
Q34	I - 4
Q35	I - 5
Q36	I - 5
Q37	H - 4
Q38	H - 4
Q39	H - 5
Q40	G - 4
Q41	G - 4
Q42	G - 5
Q43	H - 6
Q45	B - 2
Q46	B - 3
Q48	I - 3
Q49	H - 3
Q50	H - 3
Q51	K - 1
Q52	J - 1
Q53	J - 2
Q54	J - 2
Q55	I - 1
Q56	I - 2
Q57	I - 2
Q58	H - 2
Q59	G - 2
Q60	G - 1
Q61	G - 2
Q62	F - 1
Q63	F - 3
Q64	E - 3
Q65	E - 2
Q66	F - 1
Q67	F - 2
Q68	E - 1
Q69	E - 4
Q70	C - 2
Q71	D - 1
Q72	E - 2
Q73	D - 1
Q74	J - 6
Q75	J - 7
Q76	J - 7
Q77	J - 4
Q78	K - 3
Q79	J - 4
Q80	J - 3
Q81	J - 3
Q82	K - 3
Q83	K - 3
Q84	L - 3
Q85	L - 2
Q86	K - 2
Q87	K - 2
Q88	K - 1
Q89	K - 1
Q90	K - 5
Q91	L - 4
Q92	K - 4
Q93	K - 4
Q94	K - 3
Q95	L - 3
Q96	K - 6
Q97	L - 5
Q98	K - 6
Q99	K - 6
Q100	K - 5
Q101	L - 5
Q102	G - 4
RB1	A - 7
RB2	G - 3
RB3	G - 3
RB4	J - 2
RB5	K - 5
RB6	K - 7
RB7	J - 5
RV1	A - 1
RV2	C - 1
RV3	B - 7
RV4	B - 7
RV5	C - 4
RV6	C - 7
RV8	D - 4
RV9	D - 5
RV10	D - 5
RV11	H - 4
RV12	H - 1
RV13	I - 2
RV14	I - 3
RV15	E - 1
RV16	H - 1
RV17	F - 1
RV18	I - 3
RV19	I - 6
RV20	J - 6
RV21	J - 5
RV22	K - 4
RV23	K - 4
RV24	K - 6
RV25	K - 6
RV26	K - 4
RV27	J - 6
RV28	I - 5
RV29	G - 4
S1	H - 5
S4	J - 1
S5	E - 3
S6	D - 4
TP1	D - 2
TP2	C - 1
TP3	E - 2
TP4	G - 1
TP5	K - 3
TP6	A - 1
TP7	A - 1
TP8	C - 4

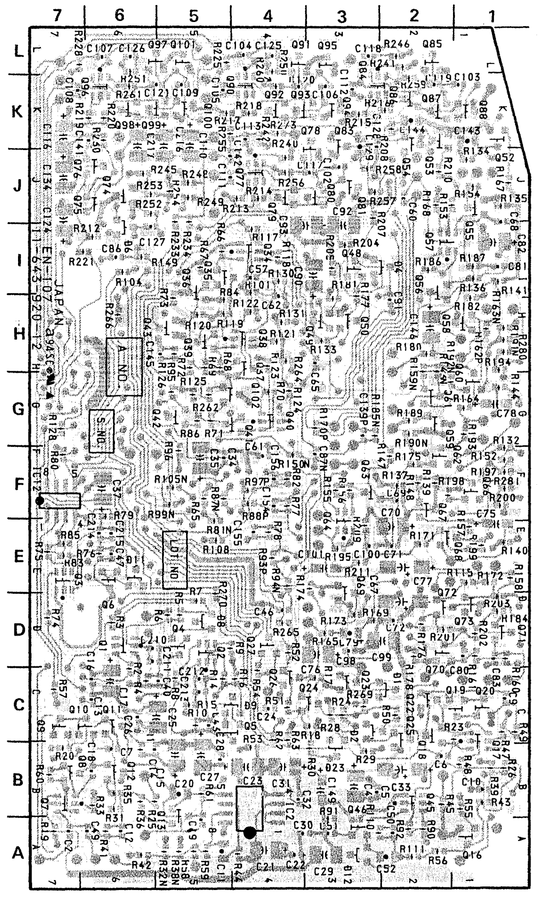
Ser No. 10015- (UC)
30021- (J)
40013- (EK)

EN-107/107P BOARD

EN - 107 / 107P (1 - 643 - 920 - 12)

CN1	F-6
CV1	C-1
DL1	A-4
DL2	H-2
D1	C-2
D2	C-3
D4	I-2
D6	I-6
D7	J-6
D8	D-5
D9	C-4
D11	E-6
D12	A-3
D14	H-1
D23	B-3
D30	G-5
E1	K-1
FL1	I-4
FL2	I-2
FL3	E-2
FL4	D-2
FL5	D-2
FL6	K-7
IC1	C-5
IC2	B-4
IC3	C-2
IC4	C-4
IC5	E-6
IC7	I-5
IC8	D-1
IC11	J-3
IC12	F-7
IC15	H-4
Q1	D-6
Q2	D-5
Q3	E-7
Q4	D-5
Q5	C-4
Q6	D-6
Q7	B-7
Q8	B-6
Q9	C-7
Q10	C-7
Q11	C-6
Q12	B-5
Q13	A-5
Q17	B-1
Q18	B-2
Q19	C-1
Q20	C-1
Q21	C-1
Q22	C-2
Q23	C-3
Q24	C-3
Q25	C-2
Q26	C-4
Q27	D-4
Q34	I-4
Q35	I-5
Q36	I-5
Q37	H-4
Q38	H-4
Q39	H-5
Q40	G-4
Q41	G-4
Q42	G-5
Q43	H-6
Q45	B-2
Q46	B-3
Q48	I-3
Q49	H-3
Q50	H-3
Q51	K-1
Q52	J-1
Q53	J-2
Q54	J-2
Q55	I-1
Q56	I-2
Q57	I-2
Q58	H-2
Q59	G-2
Q60	G-1
Q61	G-2
Q62	F-1
Q63	F-3
Q64	E-3
Q65	E-2
Q66	F-1
Q67	F-2
Q68	E-1
Q69	E-4
Q70	C-2
Q71	D-1
Q72	E-2
Q73	D-1
Q74	J-6
Q75	J-7
Q76	J-7
Q77	J-4
Q78	K-3
Q79	J-4
Q80	J-3
Q81	J-3
Q82	K-3
Q83	K-3
Q84	L-3
Q85	L-2
Q86	K-2
Q87	K-2
Q88	K-1
Q89	K-1
Q90	K-5
Q91	L-4
Q92	K-4
Q93	K-4
Q94	K-3
Q95	L-3
Q96	K-6
Q97	L-5
Q98	K-6
Q99	K-6
Q100	K-5
Q101	L-5
Q102	G-4
RB1	A-7
RB2	G-3
RB3	G-3
RB4	J-2
RB5	K-5
RB6	K-7
RB7	J-5
RV1	A-1
RV2	C-1
RV3	B-7
RV4	B-7
RV5	C-4
RV6	C-7
RV8	D-4
RV9	D-5
RV10	D-5
RV11	H-4
RV12	H-1
RV13	I-2
RV14	I-3
RV15	E-1
RV16	H-1
RV17	F-1
RV18	I-3
RV19	I-6
RV20	J-6
RV21	J-5
RV22	K-4
RV23	K-4
RV24	K-6
RV25	K-6
RV26	K-4
RV27	J-6
RV28	I-5
RV29	G-4
S1	H-5
S4	J-1
S5	E-3
S6	D-4
TP1	D-2
TP2	C-1
TP3	E-2
TP4	G-1
TP5	K-3
TP6	A-1
TP7	A-1
TP8	C-4



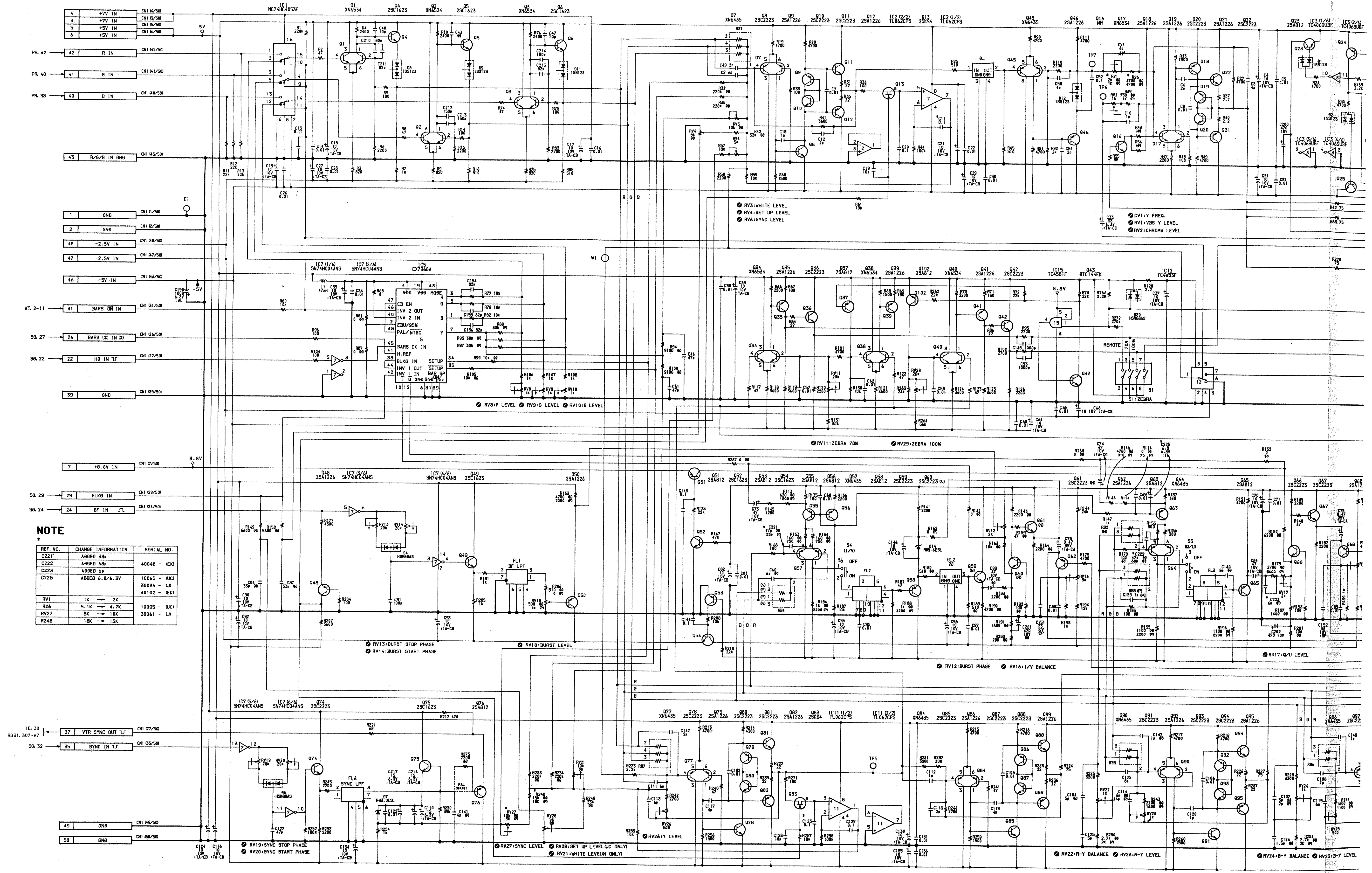


1-643-920-12 SOLDERING SIDE

EN - 107 / 107P (1 - 643 - 920 - 12)

CN1	F-6
CV1	C-1
DL1	A-4
DL2	H-2
D1	C-2
D2	C-3
D4	I-2
D6	I-6
D7	J-6
D8	D-5
D9	C-4
D11	E-6
D12	A-3
D14	H-1
D23	B-3
D30	G-5
E1	K-1
FL1	I-4
FL2	I-2
FL3	E-2
FL4	D-2
FL5	D-2
FL6	K-7
IC1	C-5
IC2	B-4
IC3	C-2
IC4	C-4
IC5	E-6
IC7	I-5
IC8	D-1
IC11	J-3
IC12	F-7
IC15	H-4
Q1	D-6
Q2	D-5
Q3	E-7
Q4	D-5
Q5	C-4
Q6	D-6
Q7	B-7
Q8	B-6
Q9	C-7
Q10	C-7
Q11	C-6
Q12	B-5
Q13	A-5
Q17	B-1
Q18	B-2
Q19	C-1
Q20	C-1
Q21	C-1
Q22	C-2
Q23	C-3
Q24	C-3
Q25	C-2
Q26	C-4
Q27	D-4
Q34	I-4
Q35	I-5
Q36	I-5
Q37	H-4
Q38	H-4
Q39	H-5
Q40	G-4
Q41	G-4
Q42	G-5
Q43	H-6
Q45	B-2
Q46	B-3
Q48	I-3
Q49	H-3
Q50	H-3
Q51	K-1
Q52	J-1
Q53	J-2
Q54	J-2
Q55	I-1
Q56	I-2
Q57	I-2
Q58	H-2
Q59	G-2
Q60	G-1
Q61	G-2
Q62	F-1
Q63	F-3
Q64	E-3
Q65	E-2
Q66	F-1
Q67	F-2
Q68	E-1
Q69	E-4
Q70	C-2
Q71	D-1
Q72	E-2
Q73	D-1
Q74	J-6
Q75	J-7
Q76	J-7
Q77	J-4
Q78	K-3
Q79	J-4
Q80	J-3
Q81	J-3
Q82	K-3
Q83	K-3
Q84	L-3
Q85	L-2
Q86	K-2
Q87	K-2
Q88	K-1
Q89	K-1
Q90	K-5
Q91	L-4
Q92	K-4
Q93	K-4
Q94	K-3
Q95	L-3
Q96	K-6
Q97	L-5
Q98	K-6
Q99	K-6
Q100	K-5
Q101	L-5
Q102	G-4
RB1	A-7
RB2	G-3
RB3	G-3
RB4	J-2
RB5	K-5
RB6	K-7
RB7	J-5
RV1	A-1
RV2	C-1
RV3	B-7
RV4	B-7
RV5	C-4
RV6	C-7
RV8	D-4
RV9	D-5
RV10	D-5
RV11	H-4
RV12	H-1
RV13	I-2
RV14	I-3
RV15	E-1
RV16	H-1
RV17	F-1
RV18	I-3
RV19	I-6
RV20	J-6
RV21	J-5
RV22	K-4
RV23	K-4
RV24	K-6
RV25	K-6
RV26	K-4
RV27	J-6
RV28	I-5
RV29	G-4
S1	H-5
S4	J-1
S5	E-3
S6	D-4
TP1	D-2
TP2	C-1
TP3	E-2
TP4	G-1
TP5	K-3
TP6	A-1
TP7	A-1
TP8	C-4

EN-107/107P BOARD


4 +7V IN CN1 (4/50)
3 +7V IN CN1 (3/50)
5 +5V IN CN1 (5/50)
6 +5V IN CN1 (6/50)
5V
PR. 42 42 R IN CN1 (42/50)
PR. 40 41 G IN CN1 (41/50)
PR. 38 40 B IN CN1 (40/50)
43 R/G/B IN GND CN1 (43/50)
E1
1 GND CN1 (1/50)
2 GND CN1 (2/50)
48 -2.5V IN CN1 (48/50)
47 -2.5V IN CN1 (47/50)
46 -5V IN CN1 (46/50)
-5V
AT. 2-11 31 BARS ON IN CN1 (31/50)
SG. 27 26 BARS CK IN CN1 (26/50)
SG. 22 22 HD IN CN1 (22/50)
39 GND CN1 (39/50)
8.8V
7 +8.8V IN CN1 (7/50)
SG. 29 29 BLKG IN CN1 (29/50)
SG. 24 24 BF IN CN1 (24/50)
IE, 38 RG31, 307-A7 27 VTR SYNC OUT CN1 (27/50)
SG. 32 35 SYNC IN CN1 (35/50)
49 GND CN1 (49/50)
50 GND CN1 (50/50)
IC1 MC74HC4053F
IC5 CX7568A
IC7 SN74HC04ANS
FL1 BF LPF
FL6 SYNC LPF
W1
TP5
TP6
TP7
S1:ZEBRA
REMOTE
S4 (I/V)
S5 (Q/U)
RV3:WHITE LEVEL
RV4:SET UP LEVEL
RV6:SYNC LEVEL
CV1:Y FREQ.
RV1:VBS Y LEVEL
RV2:CHROMA LEVEL
RV8:R LEVEL
RV9:G LEVEL
RV10:B LEVEL
RV11:ZEBRA 70%
RV29:ZEBRA 100%
RV13:BURST STOP PHASE
RV14:BURST START PHASE
RV18:BURST LEVEL
RV12:BURST PHASE
RV16:I/V BALANCE
RV17:Q/U LEVEL
RV19:SYNC STOP PHASE
RV20:SYNC START PHASE
RV27:SYNC LEVEL
RV28:SET UP LEVEL(UC ONLY)
RV21:WHITE LEVEL(UC ONLY)
RV26:Y LEVEL
RV22:R-Y BALANCE
RV23:R-Y LEVEL
RV24:B-Y BALANCE
RV25:B-Y LEVEL

NOTE

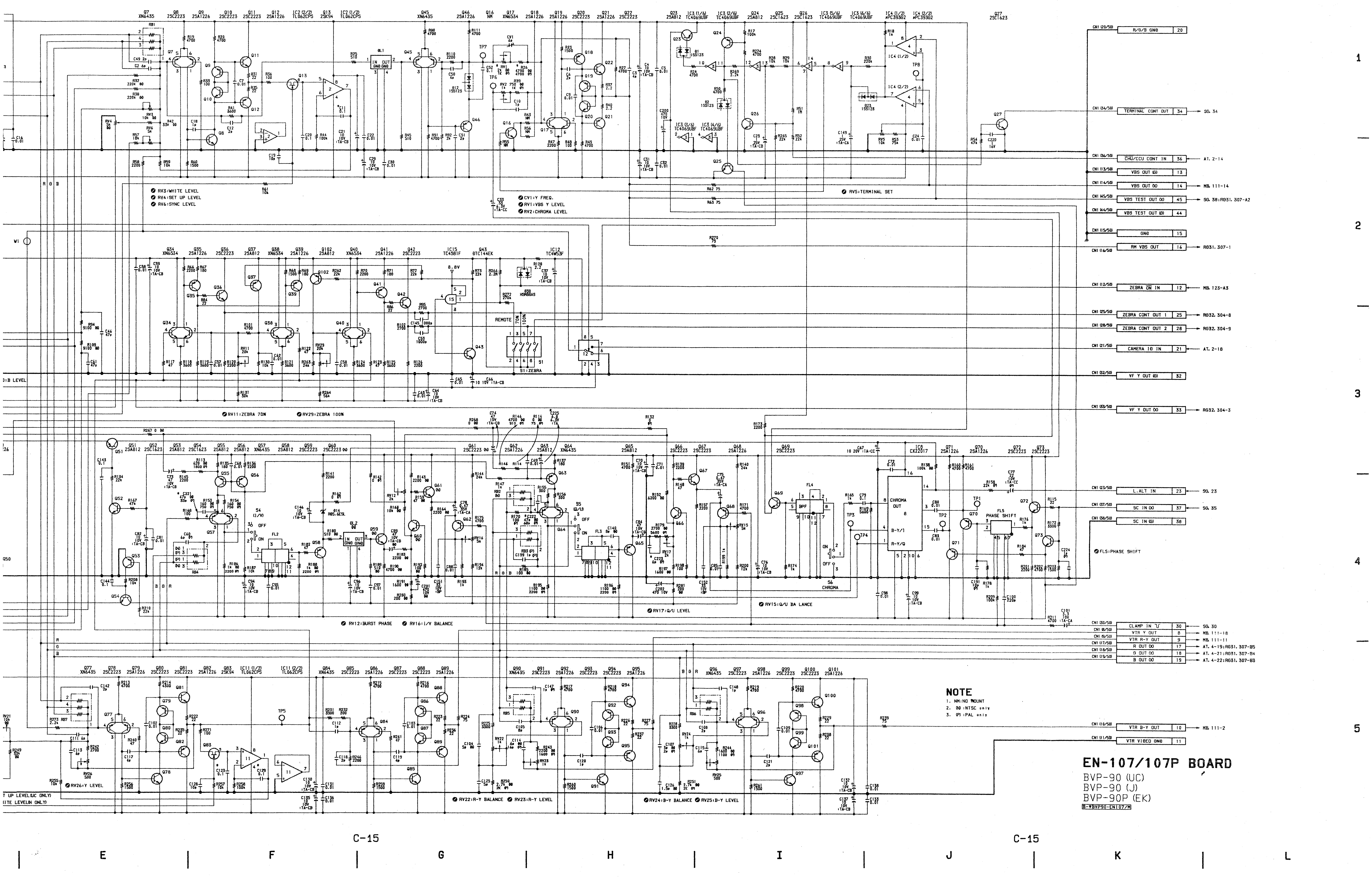
*

REF.NO.	CHANGE INFORMATION	SERIAL NO.
C221*	ADDED 33p	40048 - (EK)
C222	ADDED 68p	
C223	ADDED 6p	
C225	ADDED 6.8/6.3V	10065 - (UC) 30036 - (J) 40102 - (EK)
RV1	1K → 2K	10095 - (UC) 30061 - (J)
R26	5.1K → 4.7K	
RV27	5K → 10K	
R248	18K → 15K	

BVP-90 (J, UC)
BVP-90P (EK)

C-15 C-15

A | B | C | D | E | F | G | H |


ØRV3:WHITE LEVEL
ØRV4:SET UP LEVEL
ØRV6:SYNC LEVEL
ØCV1:Y FREQ.
ØRV1:VBS Y LEVEL
ØRV2:CHROMA LEVEL
ØRV5:TERMINAL SET
ØRV11:ZEBRA 70%
ØRV29:ZEBRA 100%
REMOTE
S1:ZEBRA
ØRV12:BURST PHASE
ØRV16:I/Y BALANCE
ØRV17:Q/U LEVEL
ØRV15:Q/U BALANCE
CHROMA
ØFL5:PHASE SHIFT
ØRV26:Y LEVEL
ØRV22:R-Y BALANCE
ØRV23:R-Y LEVEL
ØRV24:B-Y BALANCE
ØRV25:B-Y LEVEL
CN1 (20/50) R/G/B GND 20
CN1 (34/50) TERMINAL CONT OUT 34 SG. 34
CN1 (36/50) CHU/CCU CONT IN 36 AT. 2-14
CN1 (13/50) VBS OUT (G) 13
CN1 (14/50) VBS OUT (X) 14 MB. 111-14
CN1 (45/50) VBS TEST OUT (X) 45 SG. 38:RG31. 307-A2
CN1 (44/50) VBS TEST OUT (G) 44
CN1 (15/50) GND 15
CN1 (16/50) RM VBS OUT 16 RG31. 307-1
CN1 (12/50) ZEBRA ON IN 12 MB. 123-A3
CN1 (25/50) ZEBRA CONT OUT 1 25 RG32. 304-8
CN1 (28/50) ZEBRA CONT OUT 2 28 RG32. 304-9
CN1 (21/50) CAMERA ID IN 21 AT. 2-18
CN1 (32/50) VF Y OUT (G) 32
CN1 (33/50) VF Y OUT (X) 33 RG32. 304-3
CN1 (23/50) L.ALT IN 23 SG. 23
CN1 (37/50) SC IN (X) 37 SG. 35
CN1 (38/50) SC IN (G) 38
CN1 (30/50) CLAMP IN 30 SG. 30
CN1 (8/50) VTR Y OUT 8 MB. 111-18
CN1 (9/50) VTR R-Y OUT 9 MB. 111-11
CN1 (17/50) R OUT (X) 17 AT. 4-19:RG31. 307-B5
CN1 (18/50) G OUT (X) 18 AT. 4-21:RG31. 307-B4
CN1 (19/50) B OUT (X) 19 AT. 4-22:RG31. 307-B3
CN1 (10/50) VTR B-Y OUT 10 MB. 111-2
CN1 (11/50) VTR VIDEO GND 11
1
2
3
4
5
E
F
G
H
I
J
K
L

NOTE

1. NM:NO MOUNT
2. (X) :NTSC only
3. (P) :PAL only

EN-107/107P BOARD

BVP-90 (UC)
BVP-90 (J)
BVP-90P (EK)
B-*BVP90-EN107/M

Ser No. 10001-10014 (UC)
30001-30020 (J)
40001-40012 (EK)

AT-77 BOARD

1

–

2

–

3

–

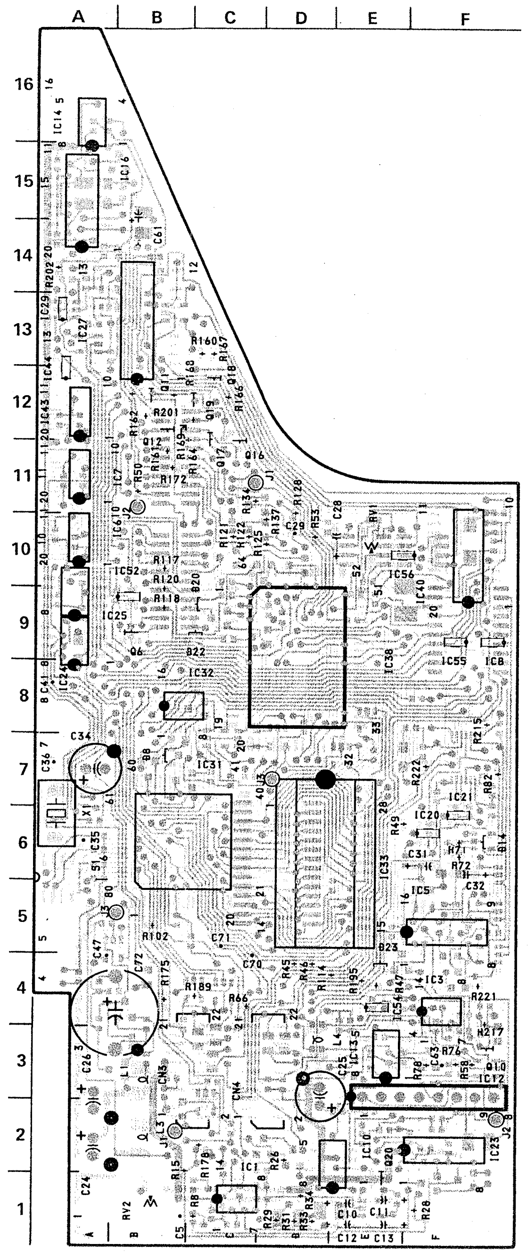
4

–

5

AT - 77 (1 - 643 - 917 - 11)

CN1	B - 10
CN2	B - 11
CN3	B - 3
CN4	C - 3
CV1	F - 11
D2	F - 1
D3	D - 2
D4	D - 2
D6	B - 7
D7	B - 7
D8	B - 7
D9	B - 8
D12	B - 8
D13	F - 3
D14	F - 6
D16	E - 4
D17	F - 4
D18	F - 4
D20	C - 9
D21	C - 10
D22	C - 9
D23	E - 5
D24	B - 16
D25	F - 1
IC1	C - 2
IC2	B - 13
IC3	F - 4
IC4	F - 7
IC5	F - 5
IC6	B - 10
IC7	B - 11
IC8	F - 9
IC10	E - 2
IC11	E - 1
IC12	F - 3
IC13	E - 3
IC14	A - 16
IC16	B - 15
IC17	E - 5
IC18	F - 5
IC19	F - 6
IC20	F - 6
IC21	F - 7
IC22	F - 6
IC23	F - 2
IC24	A - 8
IC25	B - 9
IC26	B - 13
IC27	A - 13
IC28	A - 13
IC29	A - 13
IC31	C - 7
IC32	C - 8
IC34	C - 5
IC35	D - 8
IC36	C - 8
IC37	E - 8
IC38	E - 9
IC39	F - 9
IC40	F - 9
IC41	C - 4
IC42	C - 4
IC43	A - 12
IC44	A - 12
IC45	F - 5
IC46	C - 8
IC47	E - 7
IC48	F - 3
IC49	F - 11
IC50	D - 10
IC52	B - 10
IC53	A - 5
IC54	E - 5
IC55	F - 9
IC56	E - 10
IC57	C - 2
Q2	F - 3
Q3	E - 3
Q4	B - 2
Q5	A - 13
Q6	B - 9
Q7	D - 10
Q8	C - 11
Q9	D - 10
Q10	F - 3
Q11	B - 12
Q12	B - 12
Q13	C - 9
Q14	C - 9
Q16	C - 11
Q17	C - 11
Q18	C - 12
Q19	C - 12
Q20	E - 2
Q21	A - 3
Q22	B - 4
Q23	C - 10
RV1	E - 10
RV2	B - 1
S1	A - 6
X1	A - 6


A
B
C
D
E
F
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
IC14
IC16
IC27
IC43
IC44
IC2
IC7
IC6
IC52
IC25
IC24
IC32
IC31
IC34
IC36
IC35
IC33
IC38
IC39
IC40
IC56
IC55
IC8
IC21
IC20
IC19
IC5
IC3
IC12
IC13
IC10
IC1
IC23
Q6
Q10
Q16
Q18
Q19
Q20
R117
R118
R120
R160
R172
R201
R221
R217
C34
C47
C24
C28
C29
C31
C32
C70
C71
RV1
RV2
X1
CN3
CN4

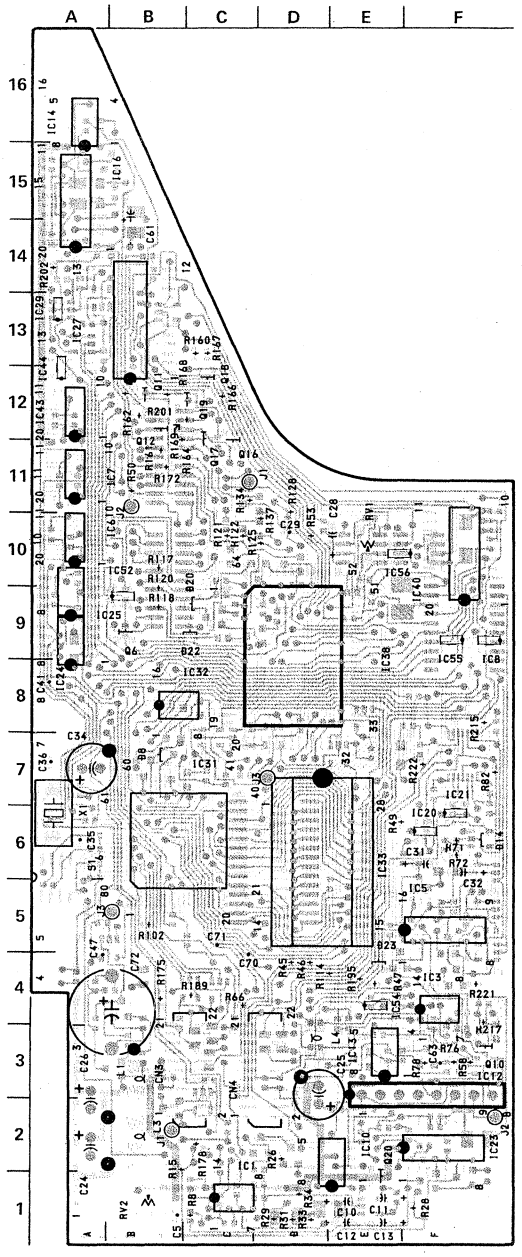
A | B | C | D | E | F | G | H

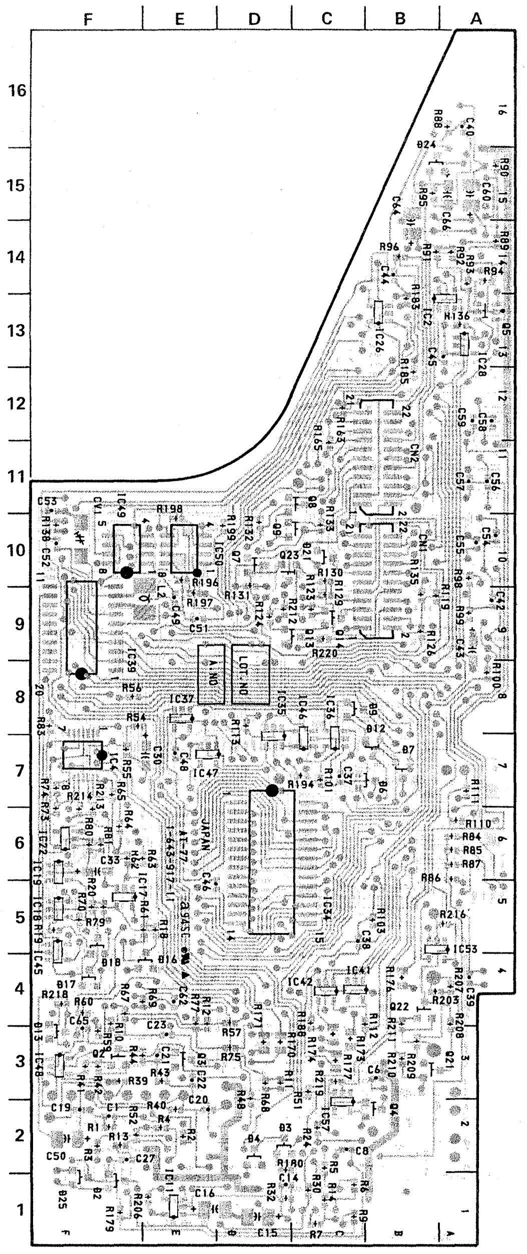
Ser No.10001-10014 (UC)
30001-30020 (J)
40001-40012 (EK)

AT-77 BOARD

AT-77 (1-643-917-11)

CN1	B-10
CN2	B-11
CN3	B-3
CN4	C-3
CV1	F-11
D2	F-1
D3	D-2
D4	D-2
D6	B-7
D7	B-7
D8	B-7
D9	B-8
D12	B-8
D13	F-3
D14	F-6
D16	E-4
D17	F-4
D18	F-4
D20	C-9
D21	C-10
D22	C-9
D23	E-5
D24	B-16
D25	F-1
IC1	C-2
IC2	B-13
IC3	F-4
IC4	F-7
IC5	F-5
IC6	B-10
IC7	B-11
IC8	F-9
IC10	E-2
IC11	E-1
IC12	F-3
IC13	E-3
IC14	A-16
IC16	B-15
IC17	E-5
IC18	F-5
IC19	F-6
IC20	F-6
IC21	F-7
IC22	F-6
IC23	F-2
IC24	A-8
IC25	B-9
IC26	B-13
IC27	A-13
IC28	A-13
IC29	A-13
IC31	C-7
IC32	C-8
IC34	C-5
IC35	D-8
IC36	C-8
IC37	E-8
IC38	E-9
IC39	F-9
IC40	F-9
IC41	C-4
IC42	C-4
IC43	A-12
IC44	A-12
IC45	F-5
IC46	C-8
IC47	E-7
IC48	F-3
IC49	F-11
IC50	D-10
IC52	B-10
IC53	A-5
IC54	E-5
IC55	F-9
IC56	E-10
IC57	C-2
Q2	F-3
Q3	E-3
Q4	B-2
Q5	A-13
Q6	B-9
Q7	D-10
Q8	C-11
Q9	D-10
Q10	F-3
Q11	B-12
Q12	B-12
Q13	C-9
Q14	C-9
Q16	C-11
Q17	C-11
Q18	C-12
Q19	C-12
Q20	E-2
Q21	A-3
Q22	B-4
Q23	C-10
RV1	E-10
RV2	B-1
S1	A-6
X1	A-6





1-643-917-11 SOLDERING SIDE

AT-77 (1-643-917-11)

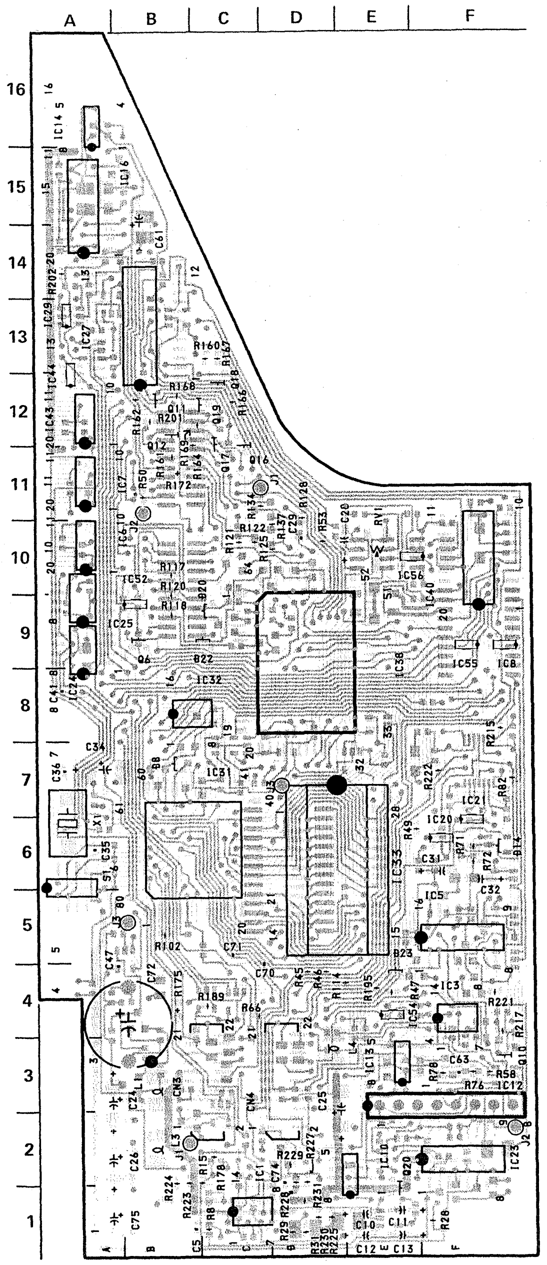
CN1	B-10
CN2	B-11
CN3	B-3
CN4	C-3
CV1	F-11
D2	F-1
D3	D-2
D4	D-2
D6	B-7
D7	B-7
D8	B-7
D9	B-8
D12	B-8
D13	F-3
D14	F-6
D16	E-4
D17	F-4
D18	F-4
D20	C-9
D21	C-10
D22	C-9
D23	E-5
D24	B-16
D25	F-1
IC1	C-2
IC2	B-13
IC3	F-4
IC4	F-7
IC5	F-5
IC6	B-10
IC7	B-11
IC8	F-9
IC10	E-2
IC11	E-1
IC12	F-3
IC13	E-3
IC14	A-16
IC16	B-15
IC17	E-5
IC18	F-5
IC19	F-6
IC20	F-6
IC21	F-7
IC22	F-6
IC23	F-2
IC24	A-8
IC25	B-9
IC26	B-13
IC27	A-13
IC28	A-13
IC29	A-13
IC31	C-7
IC32	C-8
IC34	C-5
IC35	D-8
IC36	C-8
IC37	E-8
IC38	E-9
IC39	F-9
IC40	F-9
IC41	C-4
IC42	C-4
IC43	A-12
IC44	A-12
IC45	F-5
IC46	C-8
IC47	E-7
IC48	F-3
IC49	F-11
IC50	D-10
IC52	B-10
IC53	A-5
IC54	E-5
IC55	F-9
IC56	E-10
IC57	C-2
Q2	F-3
Q3	E-3
Q4	B-2
Q5	A-13
Q6	B-9
Q7	D-10
Q8	C-11
Q9	D-10
Q10	F-3
Q11	B-12
Q12	B-12
Q13	C-9
Q14	C-9
Q16	C-11
Q17	C-11
Q18	C-12
Q19	C-12
Q20	E-2
Q21	A-3
Q22	B-4
Q23	C-10
RV1	E-10
RV2	B-1
S1	A-6
X1	A-6

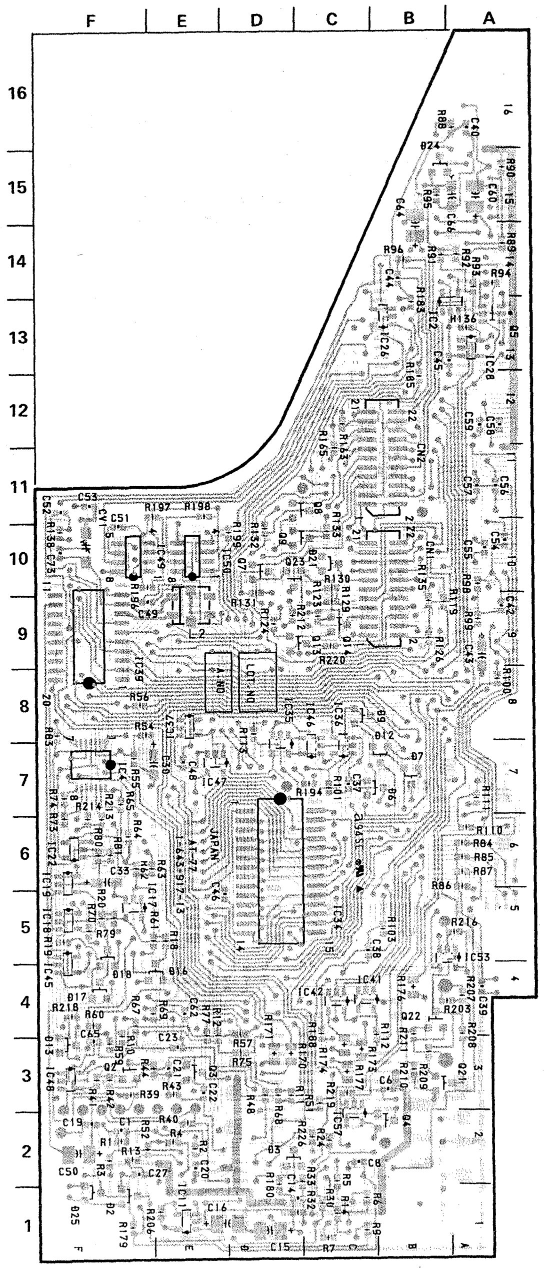
Ser No. 10153- (UC)
30106- (J)
40153- (EK)

AT-77 BOARD

AT-77 (1-643-917-13)

CN1	B-10
CN2	B-11
CN3	B-3
CN4	C-3
CV1	F-11
D2	F-1
D3	D-2
D6	B-7
D7	B-7
D8	B-7
D9	B-8
D12	B-8
D13	F-3
D14	F-6
D16	E-4
D17	F-4
D18	F-4
D20	C-9
D21	C-10
D22	C-9
D23	E-5
D24	B-16
D25	F-1
IC1	C-2
IC2	B-13
IC3	F-4
IC4	F-7
IC5	F-5
IC6	B-10
IC7	B-11
IC8	F-9
IC10	E-2
IC11	E-1
IC12	F-3
IC13	E-3
IC14	A-16
IC16	B-15
IC17	E-5
IC18	F-5
IC19	F-6
IC20	F-6
IC21	F-7
IC22	F-6
IC23	F-2
IC24	A-8
IC25	B-9
IC26	B-13
IC27	A-13
IC28	A-13
IC29	A-13
IC31	C-7
IC32	C-8
IC34	C-5
IC35	D-8
IC36	C-8
IC37	E-8
IC38	E-9
IC39	F-9
IC40	F-9
IC41	C-4
IC42	C-4
IC43	A-12
IC44	A-12
IC45	F-5
IC46	C-8
IC47	E-7
IC48	F-3
IC49	F-11
IC50	D-10
IC52	B-10
IC53	A-5
IC54	E-5
IC55	F-9
IC56	E-10
IC57	C-2
Q2	F-3
Q3	E-3
Q4	B-2
Q5	A-13
Q6	B-9
Q7	D-10
Q8	C-11
Q9	D-10
Q10	F-3
Q11	B-12
Q12	B-12
Q13	C-9
Q14	C-9
Q16	C-11
Q17	C-11
Q18	C-12
Q19	C-12
Q20	E-2
Q21	A-3
Q22	B-4
Q23	C-10
RV1	E-10
S1	A-6
X1	A-6





1-643-917-13 SOLDERING SIDE

AT-77 (1-643-917-13)

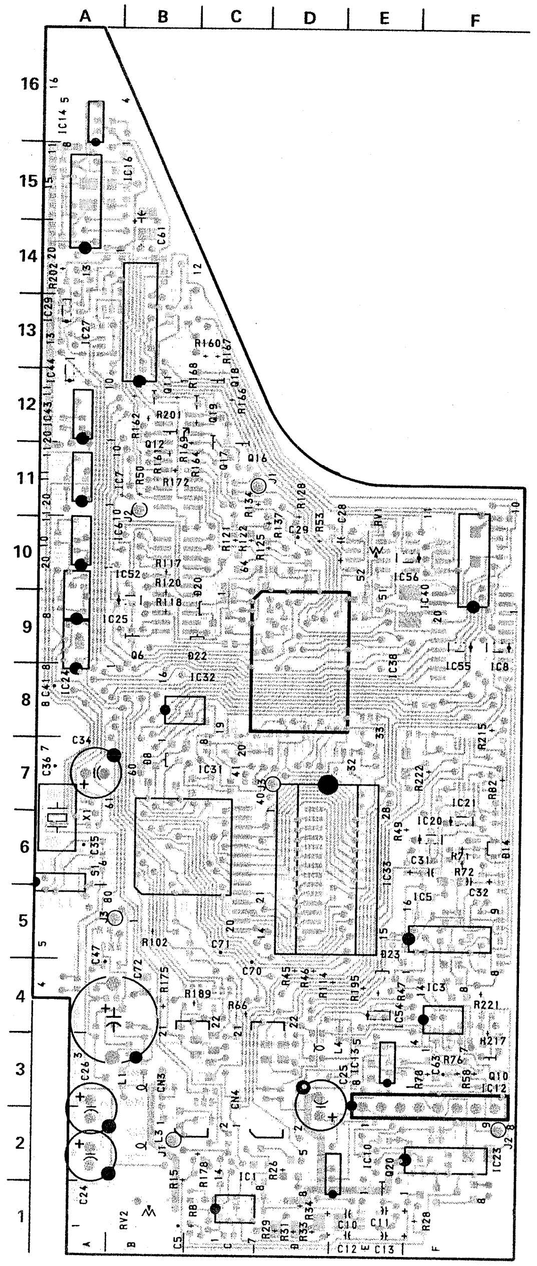
CN1	B-10
CN2	B-11
CN3	B-3
CN4	C-3
CV1	F-11
D2	F-1
D3	D-2
D6	B-7
D7	B-7
D8	B-7
D9	B-8
D12	B-8
D13	F-3
D14	F-6
D16	E-4
D17	F-4
D18	F-4
D20	C-9
D21	C-10
D22	C-9
D23	E-5
D24	B-16
D25	F-1
IC1	C-2
IC2	B-13
IC3	F-4
IC4	F-7
IC5	F-5
IC6	B-10
IC7	B-11
IC8	F-9
IC10	E-2
IC11	E-1
IC12	F-3
IC13	E-3
IC14	A-16
IC16	B-15
IC17	E-5
IC18	F-5
IC19	F-6
IC20	F-6
IC21	F-7
IC22	F-6
IC23	F-2
IC24	A-8
IC25	B-9
IC26	B-13
IC27	A-13
IC28	A-13
IC29	A-13
IC31	C-7
IC32	C-8
IC34	C-5
IC35	D-8
IC36	C-8
IC37	E-8
IC38	E-9
IC39	F-9
IC40	F-9
IC41	C-4
IC42	C-4
IC43	A-12
IC44	A-12
IC45	F-5
IC46	C-8
IC47	E-7
IC48	F-3
IC49	F-11
IC50	D-10
IC52	B-10
IC53	A-5
IC54	E-5
IC55	F-9
IC56	E-10
IC57	C-2
Q2	F-3
Q3	E-3
Q4	B-2
Q5	A-13
Q6	B-9
Q7	D-10
Q8	C-11
Q9	D-10
Q10	F-3
Q11	B-12
Q12	B-12
Q13	C-9
Q14	C-9
Q16	C-11
Q17	C-11
Q18	C-12
Q19	C-12
Q20	E-2
Q21	A-3
Q22	B-4
Q23	C-10
RV1	E-10
S1	A-6
X1	A-6

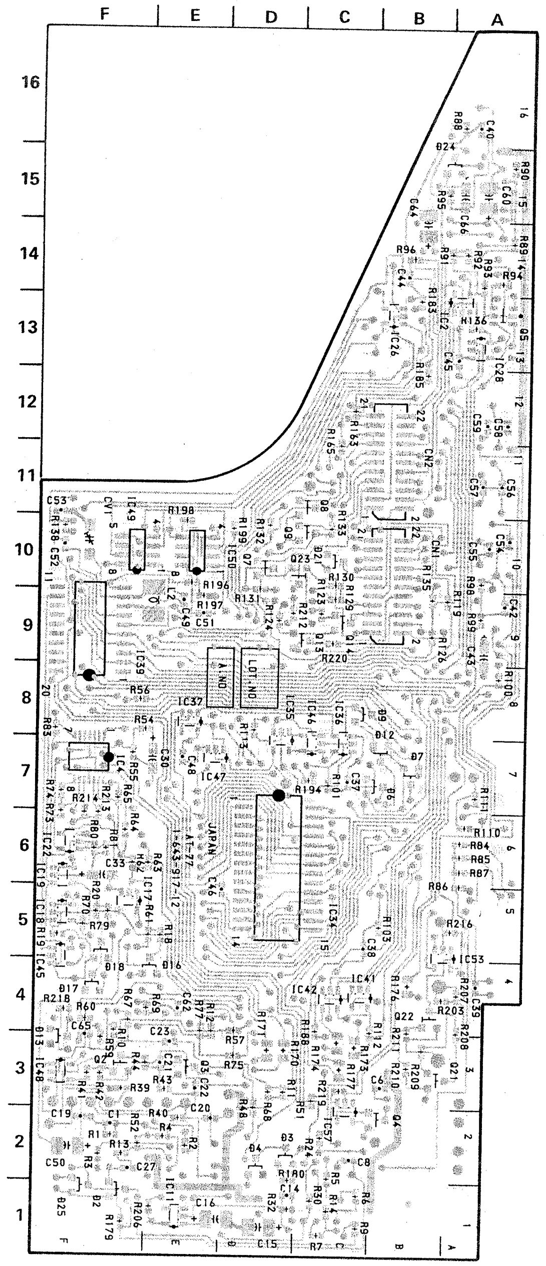
Ser No. 10015-10152 (UC)
30021-30105 (J)
40013-40152 (EK)

AT-77 BOARD

AT-77 (1-643-917-12)

CN1	B-10
CN2	B-11
CN3	B-3
CN4	C-3
CV1	F-11
D2	F-1
D3	D-2
D4	D-2
D6	B-7
D7	B-7
D8	B-7
D9	B-8
D12	B-8
D13	F-3
D14	F-6
D16	E-4
D17	F-4
D18	F-4
D20	C-9
D21	C-10
D22	C-9
D23	E-5
D24	B-16
D25	F-1
IC1	C-2
IC2	B-13
IC3	F-4
IC4	F-7
IC5	F-5
IC6	B-10
IC7	B-11
IC8	F-9
IC10	E-2
IC11	E-1
IC12	F-3
IC13	E-3
IC14	A-16
IC16	B-15
IC17	E-5
IC18	F-5
IC19	F-6
IC20	F-6
IC21	F-7
IC22	F-6
IC23	F-2
IC24	A-8
IC25	B-9
IC26	B-13
IC27	A-13
IC28	A-13
IC29	A-13
IC31	C-7
IC32	C-8
IC34	C-5
IC35	D-8
IC36	C-8
IC37	E-8
IC38	E-9
IC39	F-9
IC40	F-9
IC41	C-4
IC42	C-4
IC43	A-12
IC44	A-12
IC45	F-5
IC46	C-8
IC47	E-7
IC48	F-3
IC49	F-11
IC50	D-10
IC52	B-10
IC53	A-5
IC54	E-5
IC55	F-9
IC56	E-10
IC57	C-2
Q2	F-3
Q3	E-3
Q4	B-2
Q5	A-13
Q6	B-9
Q7	D-10
Q8	C-11
Q9	D-10
Q10	F-3
Q11	B-12
Q12	B-12
Q13	C-9
Q14	C-9
Q16	C-11
Q17	C-11
Q18	C-12
Q19	C-12
Q20	E-2
Q21	A-3
Q22	B-4
Q23	C-10
RV1	E-10
RV2	B-1
S1	A-6
X1	A-6



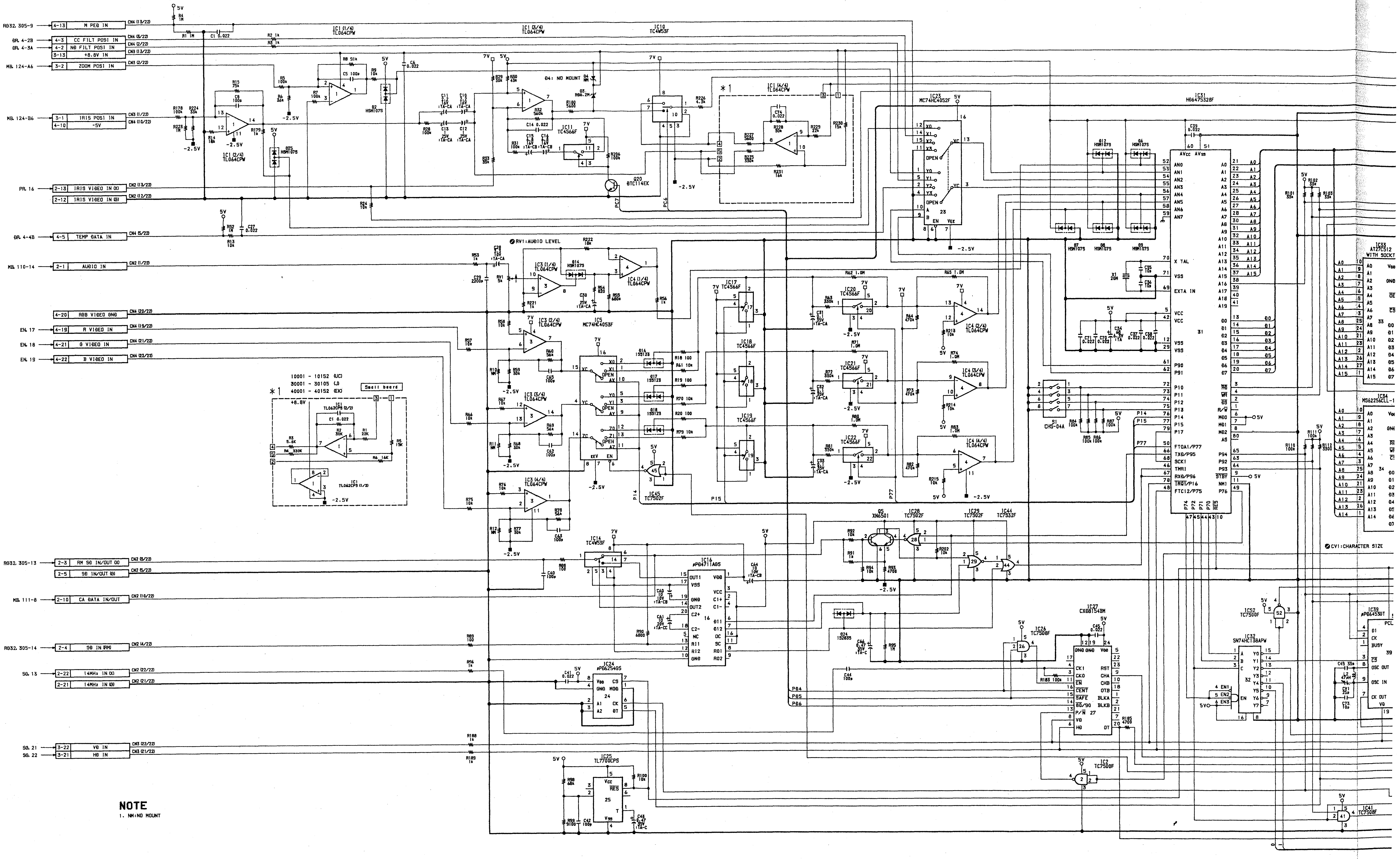


1-643-917-12 SOLDERING SIDE

AT-77 (1-643-917-12)

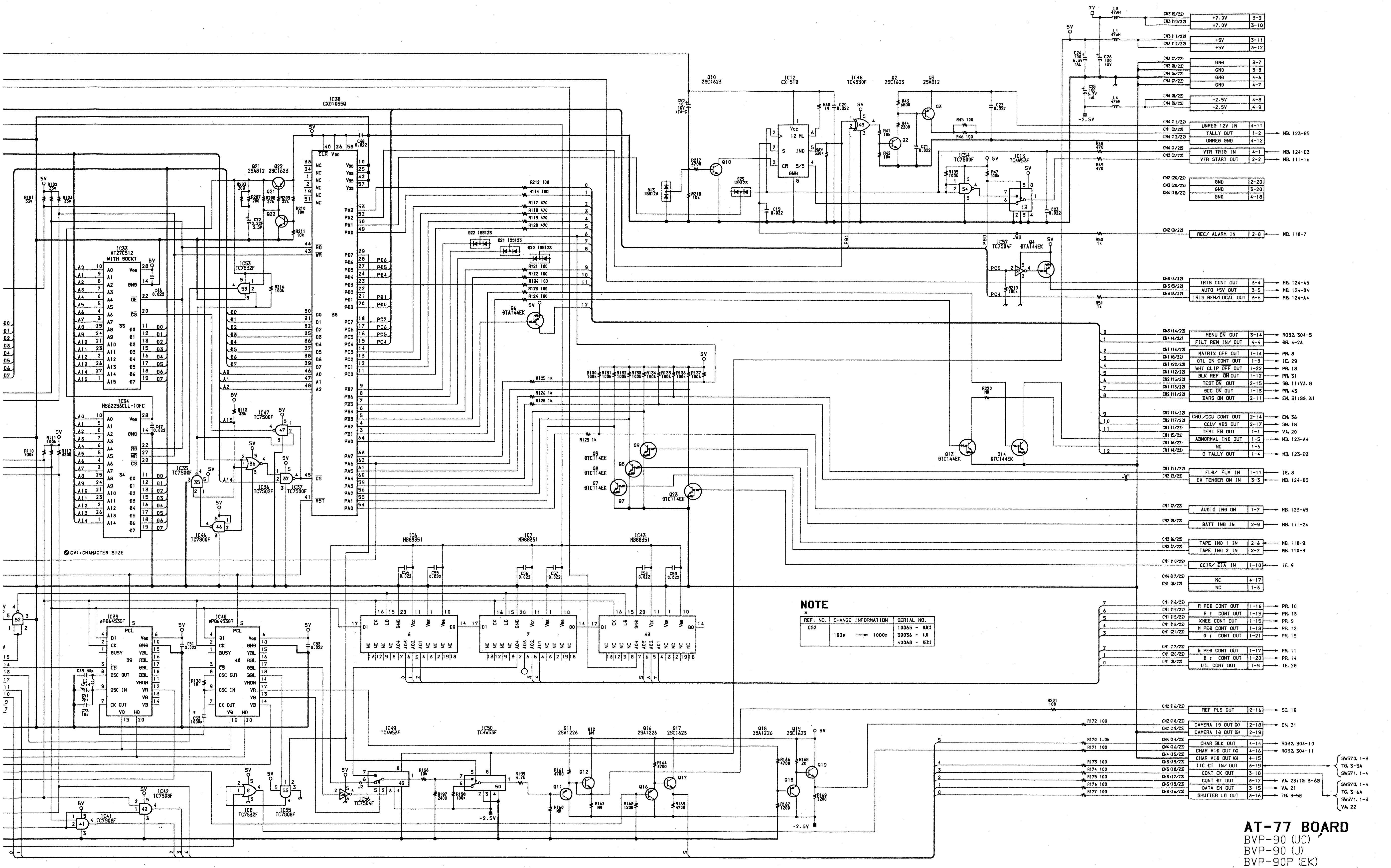
CN1	B-10
CN2	B-11
CN3	B-3
CN4	C-3
CV1	F-11
D2	F-1
D3	D-2
D4	D-2
D6	B-7
D7	B-7
D8	B-7
D9	B-8
D12	B-8
D13	F-3
D14	F-6
D16	E-4
D17	F-4
D18	F-4
D20	C-9
D21	C-10
D22	C-9
D23	E-5
D24	B-16
D25	F-1
IC1	C-2
IC2	B-13
IC3	F-4
IC4	F-7
IC5	F-5
IC6	B-10
IC7	B-11
IC8	F-9
IC10	E-2
IC11	E-1
IC12	F-3
IC13	E-3
IC14	A-16
IC16	B-15
IC17	E-5
IC18	F-5
IC19	F-6
IC20	F-6
IC21	F-7
IC22	F-6
IC23	F-2
IC24	A-8
IC25	B-9
IC26	B-13
IC27	A-13
IC28	A-13
IC29	A-13
IC31	C-7
IC32	C-8
IC34	C-5
IC35	D-8
IC36	C-8
IC37	E-8
IC38	E-9
IC39	F-9
IC40	F-9
IC41	C-4
IC42	C-4
IC43	A-12
IC44	A-12
IC45	F-5
IC46	C-8
IC47	E-7
IC48	F-3
IC49	F-11
IC50	D-10
IC52	B-10
IC53	A-5
IC54	E-5
IC55	F-9
IC56	E-10
IC57	C-2
Q2	F-3
Q3	E-3
Q4	B-2
Q5	A-13
Q6	B-9
Q7	D-10
Q8	C-11
Q9	D-10
Q10	F-3
Q11	B-12
Q12	B-12
Q13	C-9
Q14	C-9
Q16	C-11
Q17	C-11
Q18	C-12
Q19	C-12
Q20	E-2
Q21	A-3
Q22	B-4
Q23	C-10
RV1	E-10
RV2	B-1
S1	A-6
X1	A-6

AT-77 BOARD


M PEG IN
CC FILT POSI IN
ND FILT POSI IN
+8.8V IN
ZOOM POSI IN
IRIS POSI IN
-5V
IRIS VIDEO IN
TEMP DATA IN
AUDIO IN
RGB VIDEO GND
R VIDEO IN
G VIDEO IN
B VIDEO IN
RM SO IN/OUT
SO IN/OUT
CA DATA IN/OUT
SO IN (RM)
14MHz IN
VD IN
HD IN
RV1:AUDIO LEVEL
CV1:CHARACTER SIZE
Small board
10001 - 10152 (UC)
30001 - 30105 (J)
40001 - 40152 (EK)
IC23 MC74HC4052F
IC31 HD6475328F
IC5 MC74HC4053F
IC16 μPD4711AGS
IC24 μPD6254GS
IC25 TL7700CPS
IC27 CXD8154BM
IC32 SN74HC138APW
IC33 AT27C512 WITH SOCKT
IC39 μPD6450GT
S1 CHS-04A
X1 20M
-2.5V
5V
7V

NOTE
1. NM:NO MOUNT

A | B | C | D | E | F | G | H |


IC38 CXD1095Q
IC33 AT27C512 WITH SOCKT
IC34 MS62256CLL-10FC
IC39 μPD6453GT
IC40 μPD6453GT
IC6 MB88351
IC7 MB88351
IC43 MB88351
IC12 CX-518
IC48 TC4S30F
IC54 TC7S00F
IC13 TC4W53F
IC57 TC7S04F
IC49 TC4W53F
IC50 TC4W53F
IC56 TC7S04F
IC53 TC7S32F
IC47 TC7S00F
IC35 TC7S00F
IC36 TC7S02F
IC37 TC7S00F
IC46 TC7S00F
IC41 TC7S08F
IC42 TC7S08F
IC8 TC7S32F
IC55 TC7S08F
Q10 2SC1623
Q2 2SC1623
Q3 2SA812
Q21 2SA812
Q22 2SC1623
Q4 DTA144EK
Q5 DTA144EK
Q7 DTC114EK
Q8 DTC114EK
Q9 DTC114EK
Q23 DTC114EK
Q13 DTC144EK
Q14 DTC144EK
Q11 2SA1226
Q16 2SA1226
Q17 2SC1623
Q18 2SA1226
Q19 2SC1623
CV1: CHARACTER SIZE
CN3 (9/22) +7.0V 3-9
CN3 (10/22) +7.0V 3-10
CN3 (11/22) +5V 3-11
CN3 (12/22) +5V 3-12
CN3 (7/22) GND 3-7
CN3 (8/22) GND 3-8
CN4 (6/22) GND 4-6
CN4 (7/22) GND 4-7
CN4 (8/22) -2.5V 4-8
CN4 (9/22) -2.5V 4-9
CN4 (11/22) UNREG 12V IN 4-11
CN1 (2/22) TALLY OUT 1-2 → MB. 123-B5
CN4 (12/22) UNREG GND 4-12
CN4 (1/22) VTR TRIG IN 4-1 ← MB. 124-B3
CN2 (2/22) VTR START OUT 2-2 → MB. 111-16
CN2 (20/22) GND 2-20
CN3 (20/22) GND 3-20
CN4 (18/22) GND 4-18
CN2 (8/22) REC/ ALARM IN 2-8 ← MB. 110-7
CN3 (4/22) IRIS CONT OUT 3-4 → MB. 124-A5
CN3 (5/22) AUTO +5V OUT 3-5 → MB. 124-B4
CN3 (6/22) IRIS REM/LOCAL OUT 3-6 → MB. 124-A4
CN3 (14/22) MENU ON OUT 3-14 → RG32, 304-5
CN4 (4/22) FILT REM IN/ OUT 4-4 → DR. 4-2A
CN1 (14/22) MATRIX OFF OUT 1-14 → PR. 8
CN1 (8/22) DTL ON CONT OUT 1-8 → IE. 29
CN1 (22/22) WHT CLIP OFF OUT 1-22 → PR. 18
CN1 (12/22) BLK REF ON OUT 1-12 → PR. 31
CN2 (15/22) TEST ON OUT 2-15 → SG. 11; VA. 8
CN1 (13/22) DCC ON OUT 1-13 → PR. 43
CN2 (11/22) BARS ON OUT 2-11 → EN. 31; SG. 31
CN2 (14/22) CHU/CCU CONT OUT 2-14 → EN. 36
CN2 (17/22) CCU/ VBS OUT 2-17 → SG. 18
CN1 (1/22) TEST EN OUT 1-1 → VA. 20
CN1 (5/22) ABNORMAL IND OUT 1-5 → MB. 123-A4
CN1 (6/22) NC 1-6
CN1 (4/22) G TALLY OUT 1-4 → MB. 123-B3
CN1 (11/22) FLD/ FLM IN 1-11 ← IE. 8
CN3 (3/22) EX TENDER ON IN 3-3 ← MB. 124-B5
CN1 (7/22) AUDIO IND ON 1-7 → MB. 123-A5
CN2 (9/22) BATT IND IN 2-9 ← MB. 111-24
CN2 (6/22) TAPE IND 1 IN 2-6 ← MB. 110-9
CN2 (7/22) TAPE IND 2 IN 2-7 ← MB. 110-8
CN1 (10/22) CCIR/ EIA IN 1-10 ← IE. 9
CN4 (17/22) NC 4-17
CN1 (3/22) NC 1-3
CN1 (16/22) R PED CONT OUT 1-16 → PR. 10
CN1 (19/22) R γ CONT OUT 1-19 → PR. 13
CN1 (15/22) KNEE CONT OUT 1-15 → PR. 9
CN1 (18/22) M PED CONT OUT 1-18 → PR. 12
CN1 (21/22) G γ CONT OUT 1-21 → PR. 15
CN1 (17/22) B PED CONT OUT 1-17 → PR. 11
CN1 (20/22) B γ CONT OUT 1-20 → PR. 14
CN1 (9/22) DTL CONT OUT 1-9 → IE. 28
CN2 (16/22) REF PLS OUT 2-16 → SG. 10
CN2 (18/22) CAMERA ID OUT (X) 2-18 → EN. 21
CN2 (19/22) CAMERA ID OUT (G) 2-19
CN4 (14/22) CHAR BLK OUT 4-14 → RG32, 304-10
CN4 (16/22) CHAR VID OUT (X) 4-16 → RG32, 304-11
CN4 (15/22) CHAR VID OUT (G) 4-15
CN3 (19/22) IIC DT IN/ OUT 3-19 ↔ SW570, 1-3; TG. 3-5A; SW571, 1-4
CN3 (18/22) CONT CK OUT 3-18 → SW570, 1-4; TG. 3-6A; SW571, 1-3; VA. 22
CN3 (17/22) CONT DT OUT 3-17 → VA. 23; TG. 3-6B
CN3 (15/22) DATA EN OUT 3-15 → VA. 21
CN3 (16/22) SHUTTER LD OUT 3-16 → TG. 3-5B

NOTE

* REF. NO.	CHANGE INFORMATION	SERIAL NO.
C52	100p → 1000p	10065 - (UC) 30036 - (J) 40068 - (EK)

AT-77 BOARD

BVP-90 (UC)
BVP-90 (J)
BVP-90P (EK)

B-¥BVP90-AT77/M

1

2

3

4

5

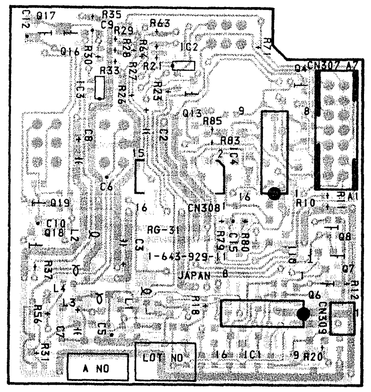
C-18

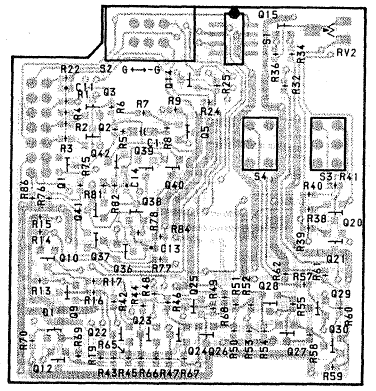
A B C D E F G H

C-18

Ser No.10001-10094 (UC)
30001-30060 (J)
40001-40101 (EK)

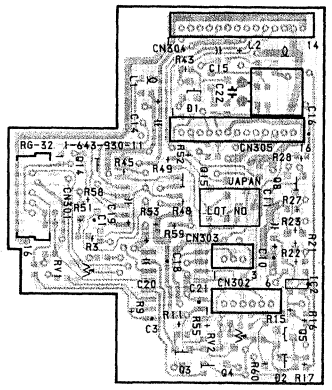
RG-31 BOARD

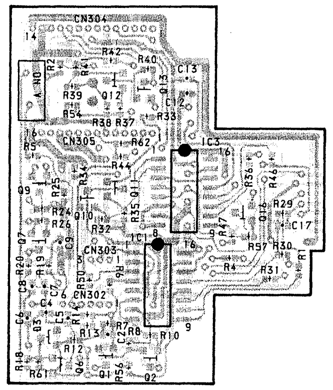




1-643-929-11 SOLDERING SIDE

RG-32 BOARD

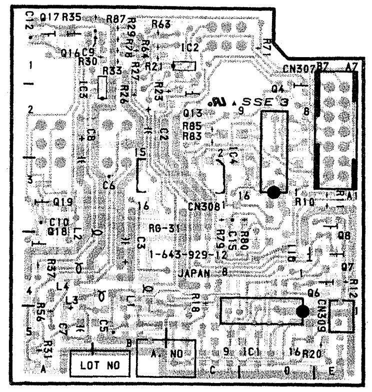


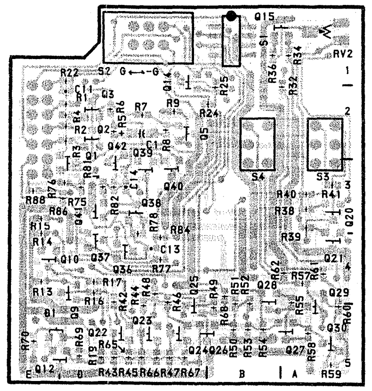


1-643-930-11 SOLDERING SIDE

Ser No.10095- (UC)
30061- (J)
40102- (EK)

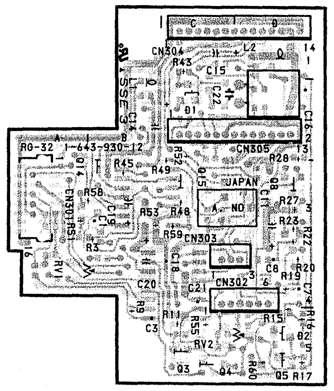
RG-31 BOARD

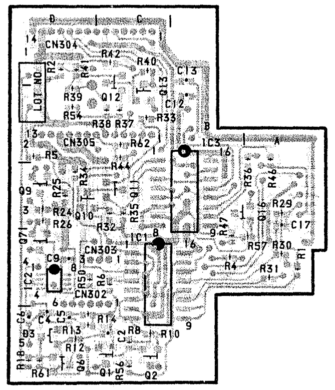




1-643-929-12 SOLDERING SIDE

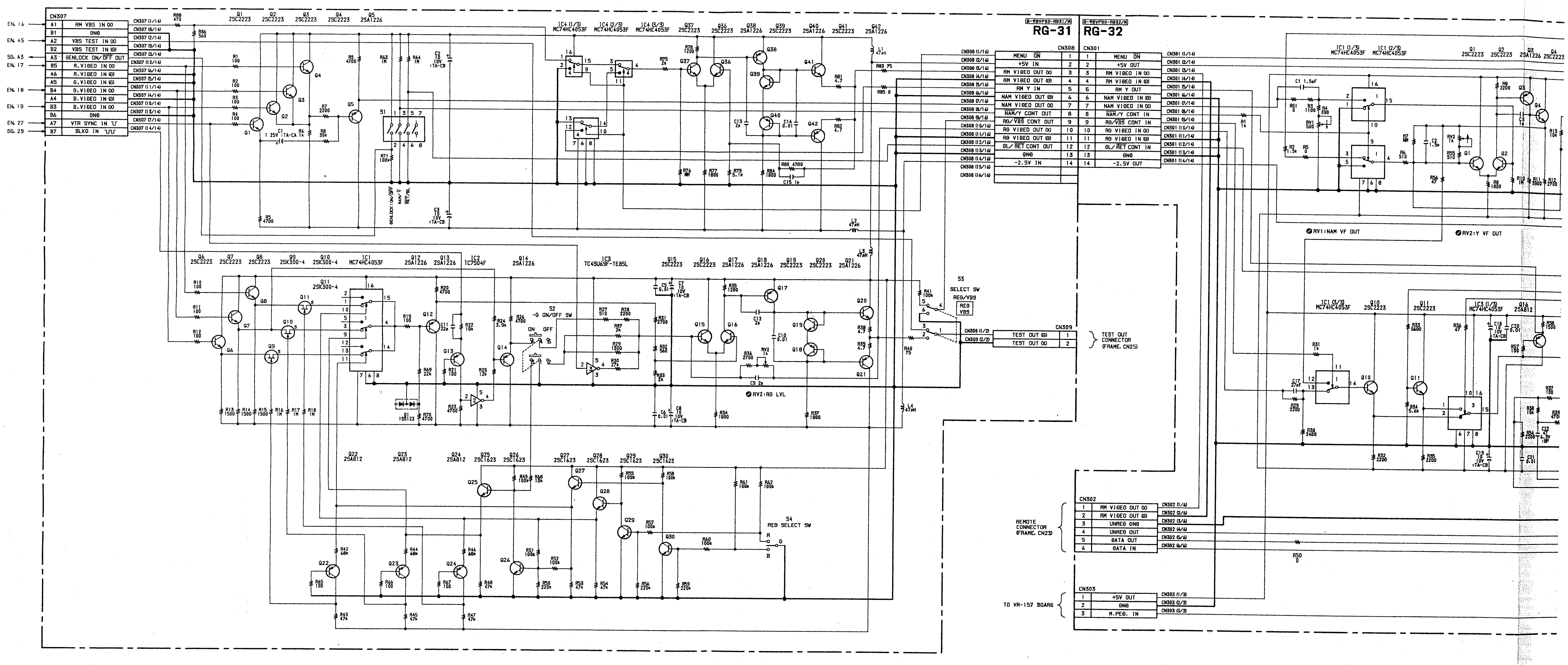
RG-32 BOARD



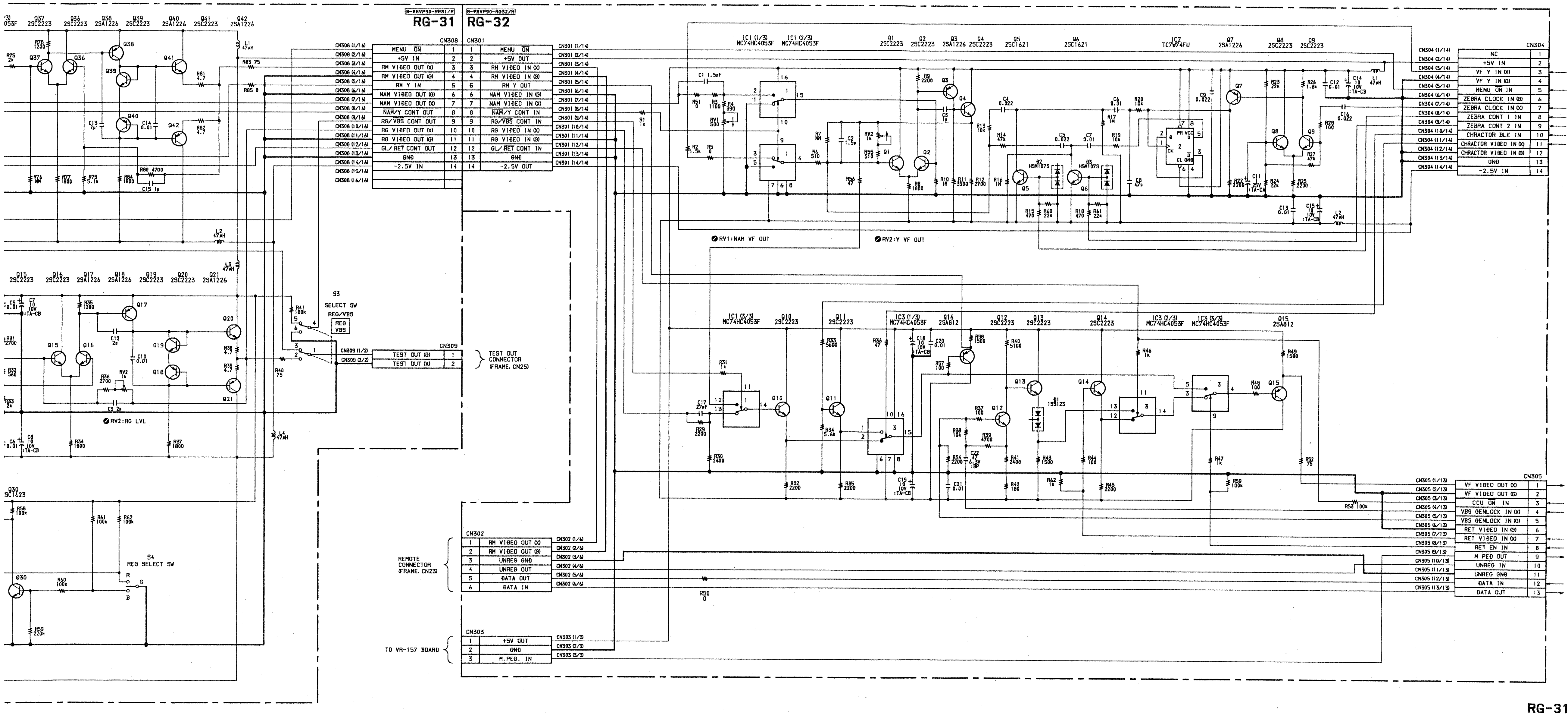


1-643-930-12 SOLDERING SIDE

RG-31 BOARD
RG-32 BOARD


B-▼BVP90-RG31/M
RG-31
B-▼BVP90-RG32/M
RG-32
CN307
EN. 16 A1 RM VBS IN (X) CN307 (1/14)
B1 GND CN307 (8/14)
EN. 45 A2 VBS TEST IN (X) CN307 (2/14)
B2 VBS TEST IN (G) CN307 (9/14)
SG. A3 A3 GENLOCK ON/OFF OUT CN307 (3/14)
EN. 17 B5 R.VIDEO IN (X) CN307 (12/14)
A6 R.VIDEO IN (G) CN307 (6/14)
A5 G.VIDEO IN (G) CN307 (5/14)
EN. 18 B4 G.VIDEO IN (X) CN307 (11/14)
A4 B.VIDEO IN (G) CN307 (4/14)
EN. 19 B3 B.VIDEO IN (X) CN307 (10/14)
B6 GND CN307 (13/14)
EN. 27 A7 VTR SYNC IN CN307 (7/14)
SG. 29 B7 BLKG IN CN307 (14/14)
CN308
CN308 (1/16) MENU ON 1
CN308 (2/16) +5V IN 2
CN308 (3/16) RM VIDEO OUT (X) 3
CN308 (4/16) RM VIDEO OUT (G) 4
CN308 (5/16) RM Y IN 5
CN308 (6/16) NAM VIDEO OUT (G) 6
CN308 (7/16) NAM VIDEO OUT (X) 7
CN308 (8/16) NAM/Y CONT OUT 8
CN308 (9/16) RG/VBS CONT OUT 9
CN308 (10/16) RG VIDEO OUT (X) 10
CN308 (11/16) RG VIDEO OUT (G) 11
CN308 (12/16) GL/RET CONT OUT 12
CN308 (13/16) GND 13
CN308 (14/16) -2.5V IN 14
CN308 (15/16)
CN308 (16/16)
CN301
1 MENU ON CN301 (1/14)
2 +5V OUT CN301 (2/14)
3 RM VIDEO IN (X) CN301 (3/14)
4 RM VIDEO IN (G) CN301 (4/14)
6 RM Y OUT CN301 (5/14)
6 NAM VIDEO IN (G) CN301 (6/14)
7 NAM VIDEO IN (X) CN301 (7/14)
8 NAM/Y CONT IN CN301 (8/14)
9 RG/VBS CONT IN CN301 (9/14)
10 RG VIDEO IN (X) CN301 (10/14)
11 RG VIDEO IN (G) CN301 (11/14)
12 GL/RET CONT IN CN301 (12/14)
13 GND CN301 (13/14)
14 -2.5V OUT CN301 (14/14)
CN309
CN309 (1/2) TEST OUT (G) 1
CN309 (2/2) TEST OUT (X) 2
TEST OUT CONNECTOR (FRAME, CN25)
S3 SELECT SW REG/VBS
REG VBS
S1
GENLOCK ON/OFF
NAM/Y
RET/GL
S2 -G ON/OFF SW
ON OFF
S4 REG SELECT SW
R G B
RV2: RG LVL
RV1: NAM VF OUT
RV2: Y VF OUT
REMOTE CONNECTOR (FRAME, CN23)
CN302
1 RM VIDEO OUT (X) CN302 (1/6)
2 RM VIDEO OUT (G) CN302 (2/6)
3 UNREG GND CN302 (3/6)
4 UNREG OUT CN302 (4/6)
5 DATA OUT CN302 (5/6)
6 DATA IN CN302 (6/6)
TO VR-157 BOARD
CN303
1 +5V OUT CN303 (1/3)
2 GND CN303 (2/3)
3 M.PED. IN CN303 (3/3)
Q1 2SC2223
Q2 2SC2223
Q3 2SC2223
Q4 2SC2223
Q5 2SA1226
IC4 (1/3) MC74HC4053F
IC4 (2/3) MC74HC4053F
IC4 (3/3) MC74HC4053F
Q37 2SC2223
Q36 2SC2223
Q38 2SA1226
Q39 2SC2223
Q40 2SC2223
Q41 2SC2223
Q42 2SA1226
Q6 2SC2223
Q7 2SC2223
Q8 2SC2223
Q9 2SK300-4
Q10 2SK300-4
Q11 2SK300-4
IC1 MC74HC4053F
Q12 2SA1226
Q13 2SA1226
IC2 TC7S04F
Q14 2SA1226
IC3 TC4SU69F-TE85L
Q15 2SC2223
Q16 2SC2223
Q17 2SA1226
Q18 2SA1226
Q19 2SC2223
Q20 2SC2223
Q21 2SA1226
Q22 2SA812
Q23 2SA812
Q24 2SA812
Q25 2SC1623
Q26 2SC1623
Q27 2SC1623
Q28 2SC1623
Q29 2SC1623
Q30 2SC1623
D1 1SS123
L1 47µH
L2 47µH
L3 47µH
L4 47µH
IC1 (1/3) MC74HC4053F
IC1 (2/3) MC74HC4053F
IC1 (3/3) MC74HC4053F
IC3 (1/3) MC74HC4053F
Q1 2SC2223
Q2 2SC2223
Q3 2SA1226
Q10 2SC2223
Q11 2SC2223
Q16 2SA812
R50 0

]


B-▼BVP90-RG31/M
RG-31
B-▼BVP90-RG32/M
RG-32
Q37 2SC2223
Q36 2SC2223
Q38 2SA1226
Q39 2SC2223
Q40 2SA1226
Q41 2SC2223
Q42 2SA1226
Q15 2SC2223
Q16 2SC2223
Q17 2SA1226
Q18 2SA1226
Q19 2SC2223
Q20 2SC2223
Q21 2SA1226
Q30 2SC1623
S3 SELECT SW REG/VBS
REG
VBS
S4 REG SELECT SW
RV2:RG LVL
IC1 (1/3) MC74HC4053F
IC1 (2/3) MC74HC4053F
Q1 2SC2223
Q2 2SC2223
Q3 2SA1226
Q4 2SC2223
Q5 2SC1621
Q6 2SC1621
IC2 TC7W74FU
Q7 2SA1226
Q8 2SC2223
Q9 2SC2223
RV1:NAM VF OUT
RV2:Y VF OUT
IC1 (3/3) MC74HC4053F
Q10 2SC2223
Q11 2SC2223
IC3 (1/3) MC74HC4053F
Q16 2SA812
Q12 2SC2223
Q13 2SC2223
Q14 2SC2223
IC3 (2/3) MC74HC4053F
IC3 (3/3) MC74HC4053F
Q15 2SA812
L1 47μH
L2 47μH
L4 47μH
R41 100k
R40 75
R50 0
R53 100k

CN308 / CN301

CN308			CN301	
MENU $\overline{\text{ON}}$	1	1	MENU $\overline{\text{ON}}$	CN301 (1/14)
+5V IN	2	2	+5V OUT	CN301 (2/14)
RM VIDEO OUT (X)	3	3	RM VIDEO IN (X)	CN301 (3/14)
RM VIDEO OUT (G)	4	4	RM VIDEO IN (G)	CN301 (4/14)
RM Y IN	5	6	RM Y OUT	CN301 (5/14)
NAM VIDEO OUT (G)	6	6	NAM VIDEO IN (G)	CN301 (6/14)
NAM VIDEO OUT (X)	7	7	NAM VIDEO IN (X)	CN301 (7/14)
$\overline{\text{NAM}}$/Y CONT OUT	8	8	$\overline{\text{NAM}}$/Y CONT IN	CN301 (8/14)
RG/$\overline{\text{VBS}}$ CONT OUT	9	9	RG/$\overline{\text{VBS}}$ CONT IN	CN301 (9/14)
RG VIDEO OUT (X)	10	10	RG VIDEO IN (X)	CN301 (10/14)
RG VIDEO OUT (G)	11	11	RG VIDEO IN (G)	CN301 (11/14)
GL/$\overline{\text{RET}}$ CONT OUT	12	12	GL/$\overline{\text{RET}}$ CONT IN	CN301 (12/14)
GND	13	13	GND	CN301 (13/14)
-2.5V IN	14	14	-2.5V OUT	CN301 (14/14)

CN304

CN304 (1/14)	NC	1	
CN304 (2/14)	+5V IN	2	
CN304 (3/14)	VF Y IN (X)	3	EN. 33
CN304 (4/14)	VF Y IN (G)	4	
CN304 (5/14)	MENU $\overline{\text{ON}}$ IN	5	AT. 3-14
CN304 (6/14)	ZEBRA CLOCK IN (G)	6	
CN304 (7/14)	ZEBRA CLOCK IN (X)	7	SG. 26
CN304 (8/14)	ZEBRA CONT 1 IN	8	EN. 25
CN304 (9/14)	ZEBRA CONT 2 IN	9	EN. 28
CN304 (10/14)	CHRACTOR BLK IN	10	AT. 4-14
CN304 (11/14)	CHRACTOR VIDEO IN (X)	11	AT. 4-16
CN304 (12/14)	CHRACTOR VIDEO IN (G)	12	
CN304 (13/14)	GND	13	
CN304 (14/14)	-2.5V IN	14	

CN309

CN309 (1/2)	TEST OUT (G)	1	TEST OUT CONNECTOR (FRAME. CN25)
CN309 (2/2)	TEST OUT (X)	2	

CN305

CN305 (1/13)	VF VIDEO OUT (X)	1	MB. 123-B8
CN305 (2/13)	VF VIDEO OUT (G)	2	
CN305 (3/13)	CCU $\overline{\text{ON}}$ IN	3	SG. 17
CN305 (4/13)	VBS GENLOCK IN (X)	4	CN110-24
CN305 (5/13)	VBS GENLOCK IN (G)	5	
CN305 (6/13)	RET VIDEO IN (G)	6	
CN305 (7/13)	RET VIDEO IN (X)	7	CN110-18
CN305 (8/13)	RET EN IN	8	CN111-15
CN305 (9/13)	M PED OUT	9	AT. 4-13
CN305 (10/13)	UNREG IN	10	
CN305 (11/13)	UNREG GND	11	
CN305 (12/13)	DATA IN	12	AT. 2-13
CN305 (13/13)	DATA OUT	13	AT. 2-12

REMOTE CONNECTOR (FRAME. CN23) — CN302

1	RM VIDEO OUT (X)	CN302 (1/6)
2	RM VIDEO OUT (G)	CN302 (2/6)
3	UNREG GND	CN302 (3/6)
4	UNREG OUT	CN302 (4/6)
5	DATA OUT	CN302 (5/6)
6	DATA IN	CN302 (6/6)

TO VR-157 BOARD — CN303

1	+5V OUT	CN303 (1/3)
2	GND	CN303 (2/3)
3	M.PED. IN	CN303 (3/3)

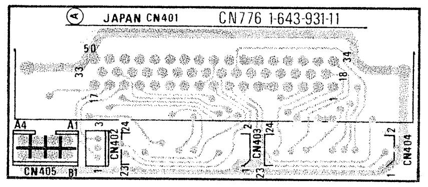
RG-31 BOARD
RG-32 BOARD

BVP-90 (UC)
BVP-90 (J)
BVP-90P (EK)

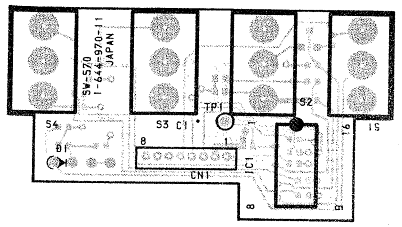
A-▼BVP90-RG/M
B-▼BVP90-RG31/M
B-▼BVP90-RG32/M

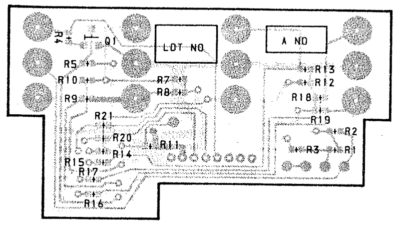
Ser No. 10001-10014 (UC)
30001-30020 (J)
40001-40012 (EK)

CN-776 BOARD


JAPAN CN401
CN776 1-643-931-11
CN405
CN402
CN403
CN404

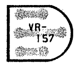
SW-570 BOARD


SW-570
1-644-970-11
JAPAN
S4
S3
C1
TP1
S2
S1
CN1
IC1

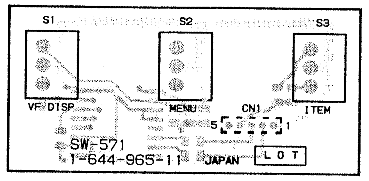

LOT NO.
Q1
R5
R10
R9
R7
R8
R21
R20
R14
R11
R15
R17
R16
R13
R12
R18
R19
R2
R3
R1

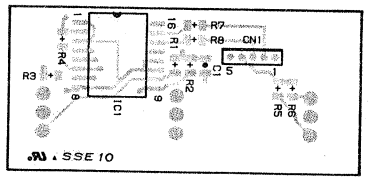
1-644-970-11 SOLDERING SIDE

VR-157 BOARD



SW-571 BOARD


S1
S2
S3
VF DISP
MENU
ITEM
CN1
SW-571
1-644-965-11
JAPAN
LOT

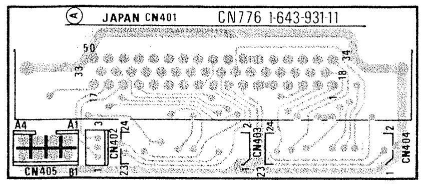

R3
R4
IC1
R7
R8
CN1
R2
C1
R5
R6
SSE 10

1-644-965-11 SOLDERING SIDE

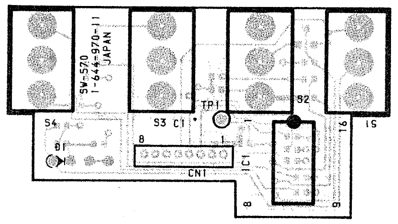
FRAME WIRING CN-776 MB-455 SW-570 SW-571 VR-157

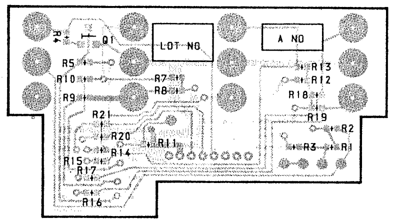
Ser No.10001-10014 (UC)
30001-30020 (J)
40001-40012 (EK)

CN-776 BOARD


JAPAN CN401
CN776 1-643-931-11
CN405
CN402
CN403
CN404

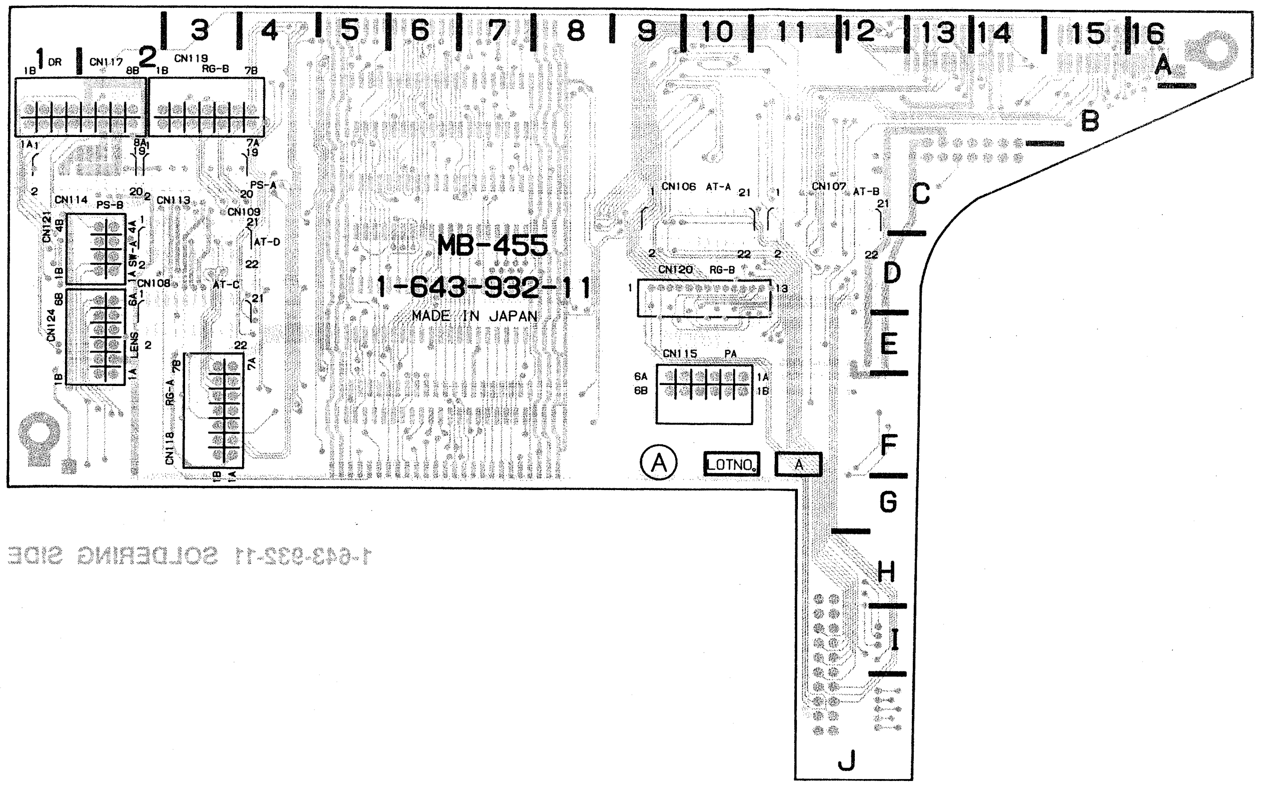
SW-570 BOARD


SW-570 1-644-970-11 JAPAN
S4
S3
S2
S1
TP1
CN1
IC1

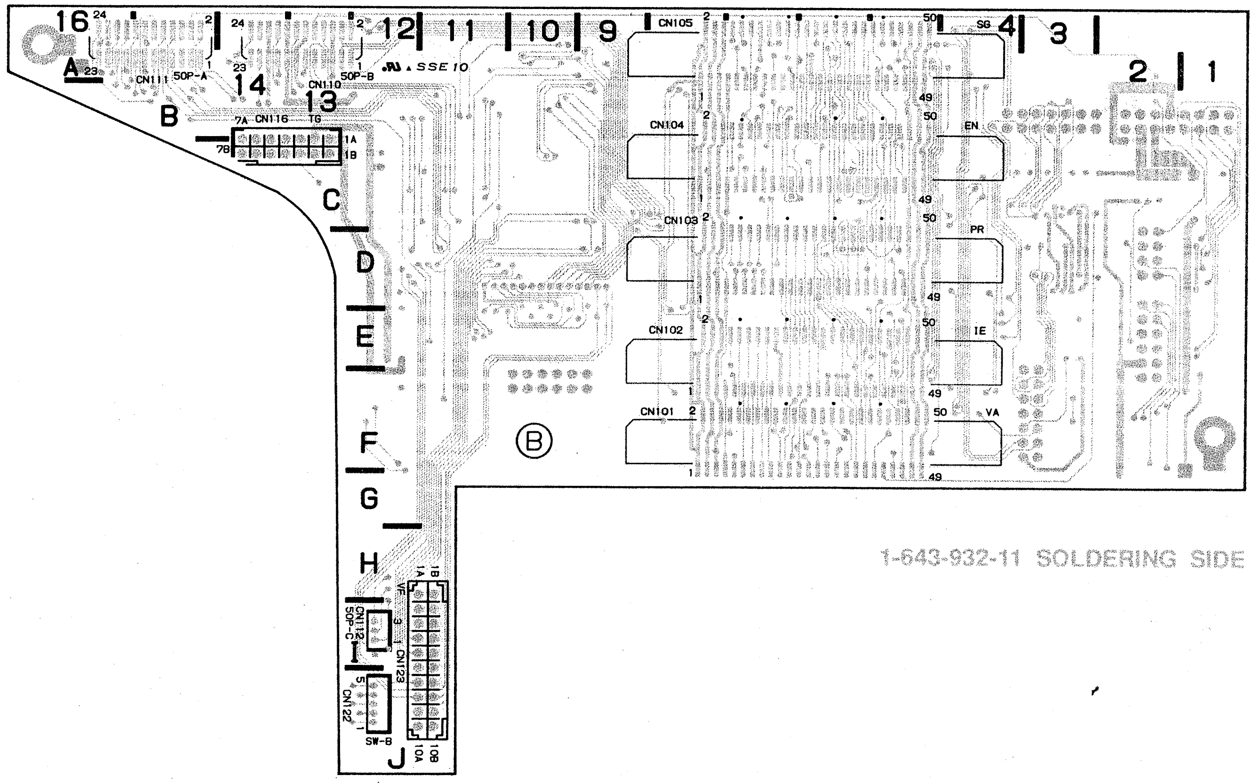

LOT NO.
A NO
Q1
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21

1-644-970-11 SOLDERING SIDE

MB-455 BOARD

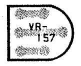

MB-455
1-643-932-11
MADE IN JAPAN
CN117
CN119 RG-B
CN114 PS-B
CN113
CN109
CN108 AT-C
CN121
CN124 LENS
CN118 RG-A
CN106 AT-A
CN107 AT-B
CN120 RG-B
CN115 PA
LOTNO.
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J

1-643-932-11 SOLDERING SIDE

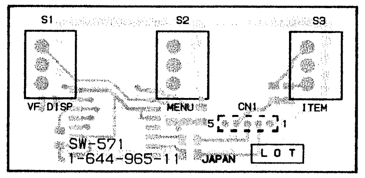

CN111 50P-A
CN110 50P-B
CN116 TG
CN105
CN104
CN103
CN102
CN101
CN123
CN122
SW-B
EN
PR
IE
VA
SG
SSE 10
1
2
3
4
9
10
11
12
13
14
16
A
B
C
D
E
F
G
H
J

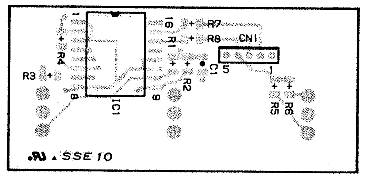
1-643-932-11 SOLDERING SIDE

VR-157 BOARD



SW-571 BOARD


S1
S2
S3
VF DISP
MENU
ITEM
CN1
SW-571
1-644-965-11
JAPAN
LOT


IC1
R2
R3
R4
R5
R6
R7
R8
C1
CN1
SSE 10

1-644-965-11 SOLDERING SIDE

Ser No.10015- (UC)
30021- (J)
40013- (EK)

1

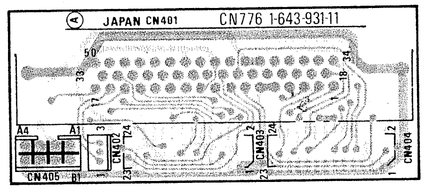
2

3

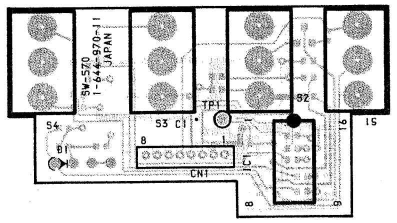
4

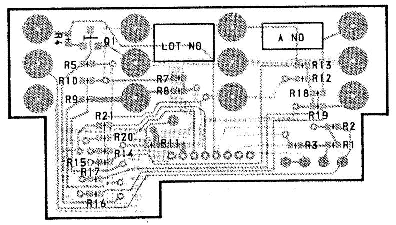
5

CN-776 BOARD


JAPAN CN401
CN776 1-643-931-11
CN405
CN402
CN403
CN404

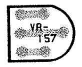
SW-570 BOARD


SW-570
1-644-970-11
JAPAN
TP1
S4
S3
C1
S2
CN1

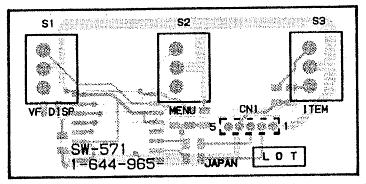

LOT NO.
A NO
Q1
R5
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21

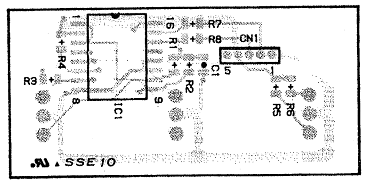
1-644-970-11 SOLDERING SIDE

VR-157 BOARD



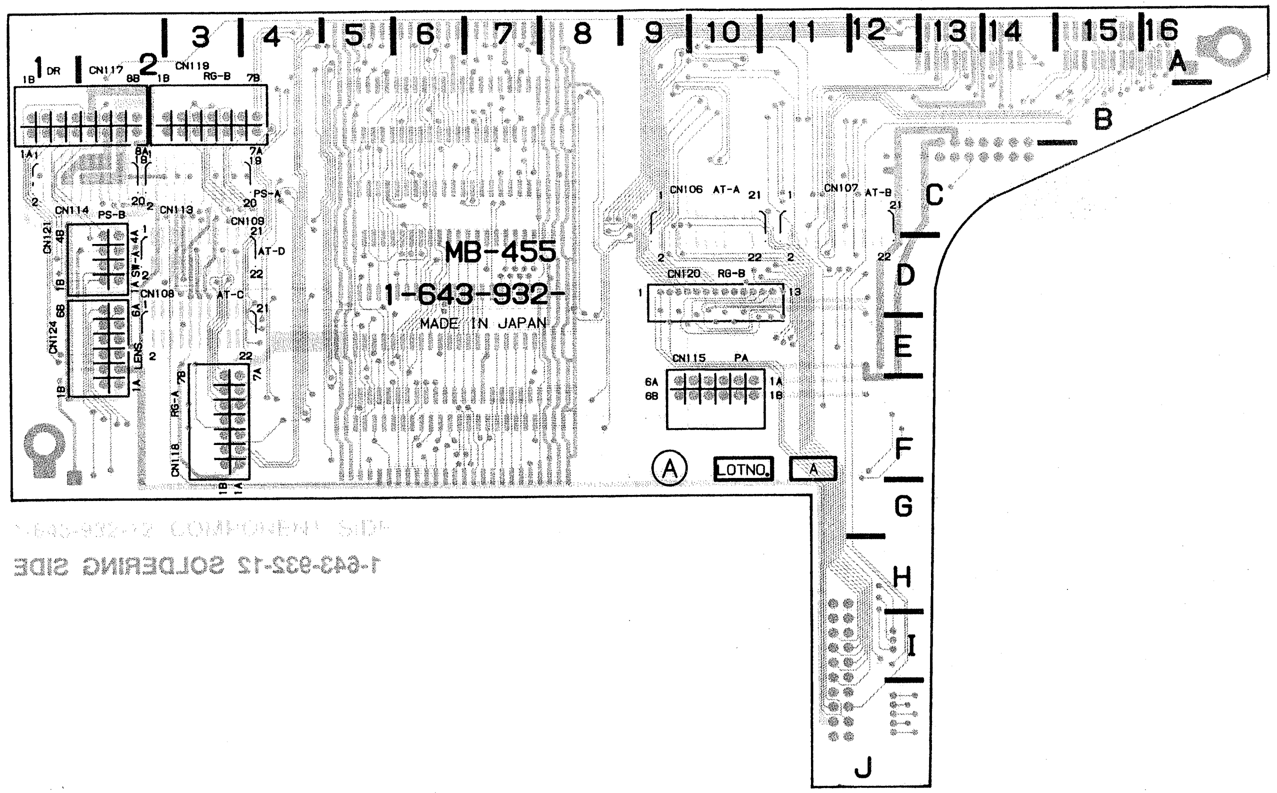
SW-571 BOARD


S1
S2
S3
VF DISP
MENU
ITEM
CN1
SW-571
1-644-965
JAPAN
LOT

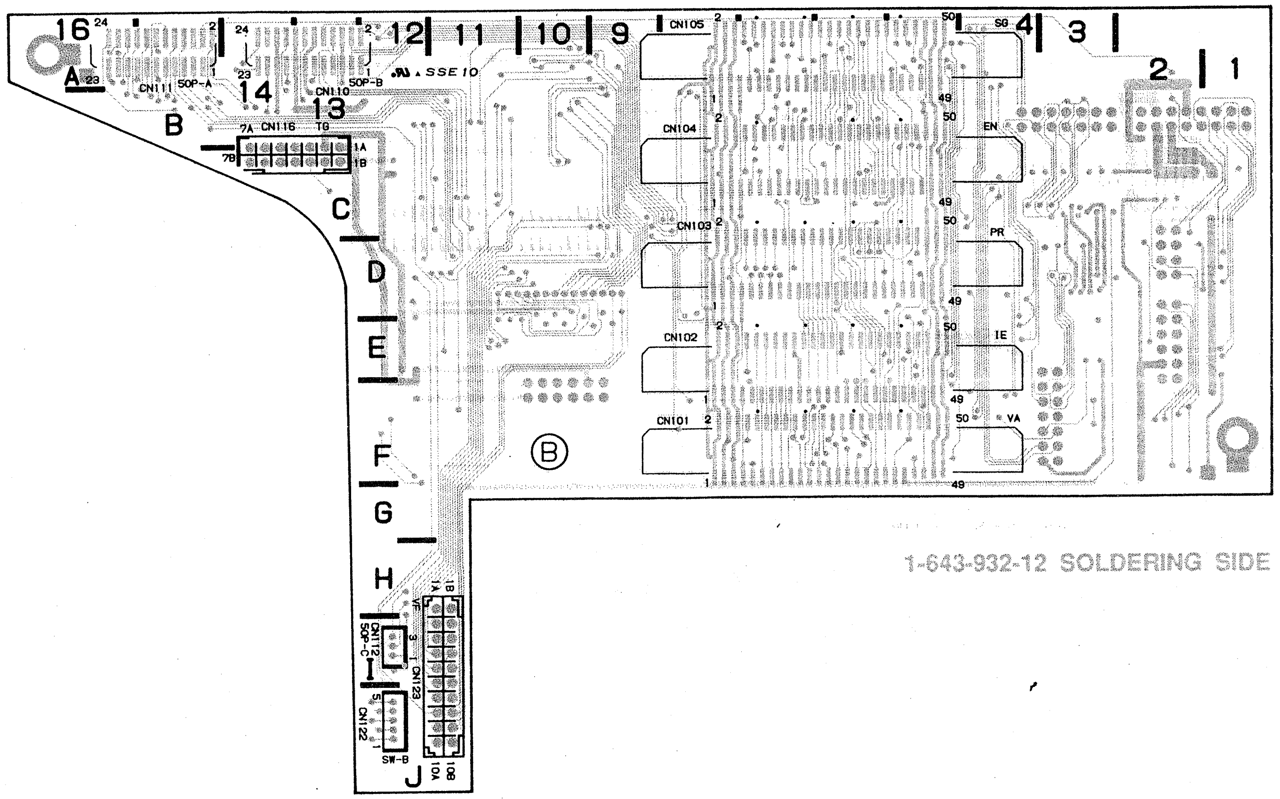

IC1
R2
R3
R4
R5
R6
R7
R8
C1
CN1
SSE 10

1-644-965-12 SOLDERING SIDE

MB-455 BOARD


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
CN117
CN119
RG-B
CN114
PS-B
CN113
PS-A
CN109
AT-D
CN108
AT-C
CN121
CN124
CN118
RG-A
CN106 AT-A
CN107 AT-B
CN120 RG-B
CN115 PA
MB-455
1-643-932-
MADE IN JAPAN
LOTNO.
A

1-643-932-12 SOLDERING SIDE

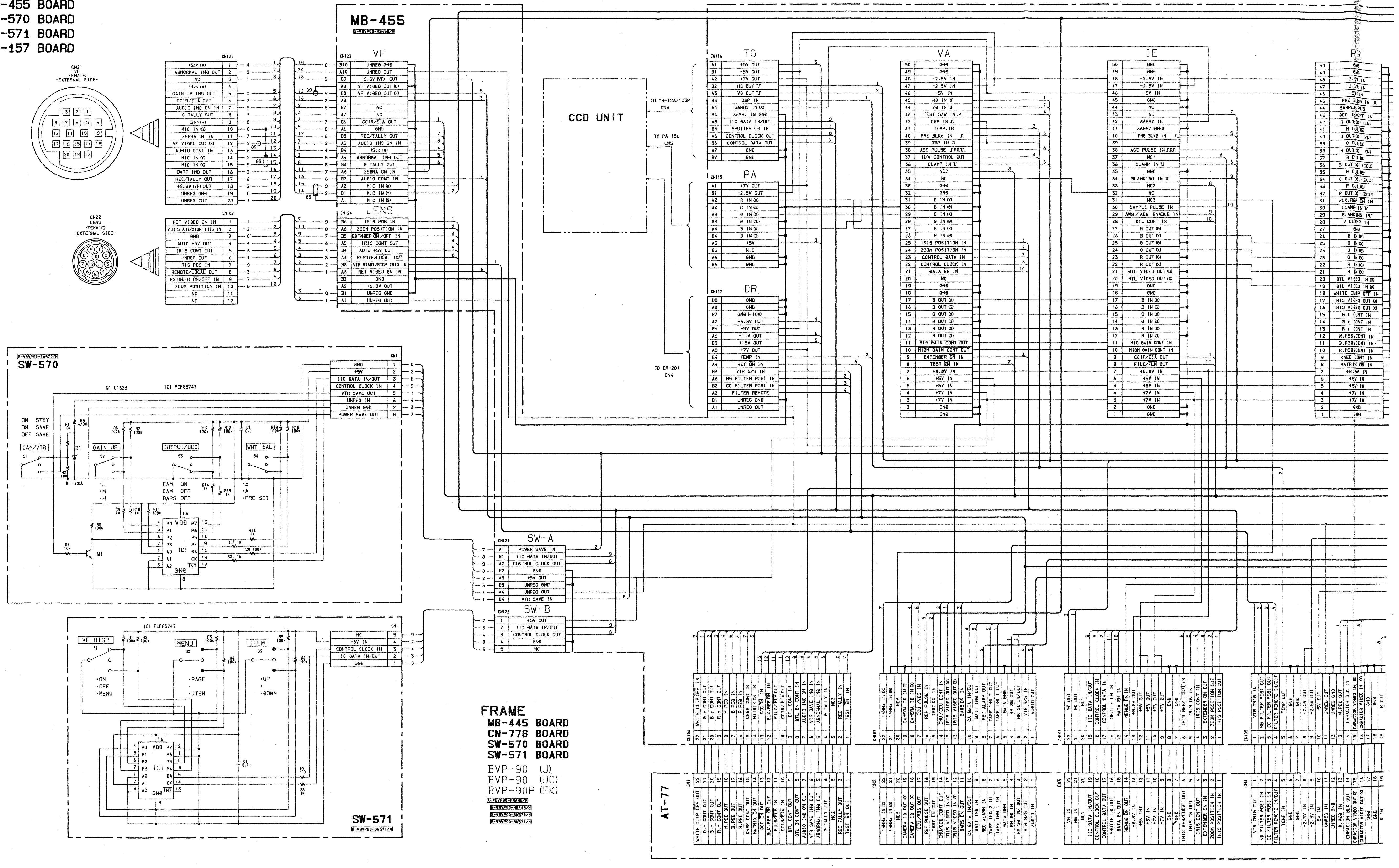

16
14
13
12
11
10
9
4
3
2
1
A
B
C
D
E
F
G
H
I
J
CN111 SOP-A
CN110 SOP-B
CN116
SSE 10
CN105
CN104
CN103
CN102
CN101
EN
PR
IE
VA
S6
CN112 SOP-C
CN123
CN122
SW-B

1-643-932-12 SOLDERING SIDE

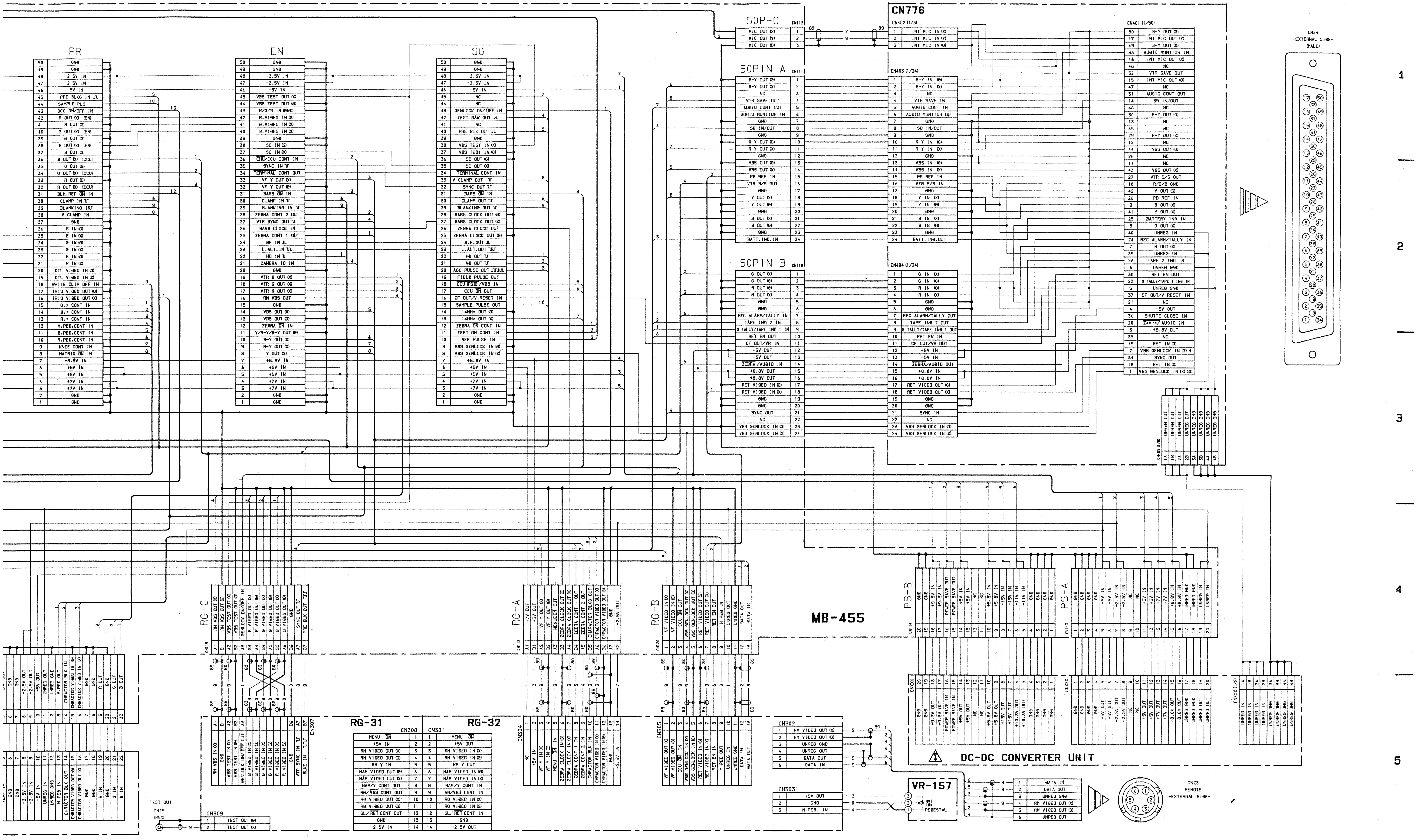
A | B | C | D | E | F | G | H

FRAME WIRING

CN-776 BOARD
MB-455 BOARD
SW-570 BOARD
SW-571 BOARD
VR-157 BOARD


CN21
VF
(FEMALE)
-EXTERNAL SIDE-
CN22
LENS
(FEMALE)
-EXTERNAL SIDE-
CN101
CN102
MB-455
VF
LENS
CN123
CN124
CCD UNIT
TO TG-123/123P CN3
TO PA-156 CN5
TO DR-201 CN4
TG
CN116
PA
CN115
DR
CN117
VA
IE
SW-570
Q1 C1623
IC1 PCF8574T
ON STBY
ON SAVE
OFF SAVE
CAM/VTR
GAIN UP
OUTPUT/DCC
WHT BAL
CAM ON
CAM OFF
BARS OFF
·L
·M
·H
·B
·A
·PRE SET
SW-A
CN121
SW-B
CN122
SW-571
VF DISP
MENU
ITEM
·ON
·OFF
·MENU
·PAGE
·ITEM
·UP
·DOWN
AT-77
CN106
CN107
CN108
CN109
CN1
CN2
CN3
CN4

FRAME
MB-445 BOARD
CN-776 BOARD
SW-570 BOARD
SW-571 BOARD
BVP-90 (J)
BVP-90 (UC)
BVP-90P (EK)


PR
50 GND
49 GND
48 -2.5V IN
47 -2.5V IN
46 -5V IN
45 PRE BLKG IN
44 SAMPLE PLS
43 DCC ON/OFF IN
42 R OUT (X) (EN)
41 R OUT (G)
40 G OUT (X) (EN)
39 G OUT (G)
38 B OUT (X) (EN)
37 B OUT (G)
36 B OUT (X) (CCU)
35 G OUT (G)
34 G OUT (X) (CCU)
33 R OUT (G)
32 R OUT (X) (CCU)
31 BLK.REF ON IN
30 CLAMP IN
29 BLANKING IN
28 V CLAMP IN
27 GND
26 B IN (G)
25 B IN (X)
24 G IN (G)
23 G IN (X)
22 R IN (G)
21 R IN (X)
20 DTL VIDEO IN (G)
19 DTL VIDEO IN (X)
18 WHITE CLIP OFF IN
17 IRIS VIDEO OUT (G)
16 IRIS VIDEO OUT (X)
15 G.γ CONT IN
14 B.γ CONT IN
13 R.γ CONT IN
12 M.PED.CONT IN
11 B.PED.CONT IN
10 R.PED.CONT IN
9 KNEE CONT IN
8 MATRIX ON IN
7 +8.8V IN
6 +5V IN
5 +5V IN
4 +7V IN
3 +7V IN
2 GND
1 GND
EN
50 GND
49 GND
48 -2.5V IN
47 -2.5V IN
46 -5V IN
45 VBS TEST OUT (X)
44 VBS TEST OUT (G)
43 R/G/B IN (GND)
42 R.VIDEO IN (X)
41 G.VIDEO IN (X)
40 B.VIDEO IN (X)
39 GND
38 SC IN (G)
37 SC IN (X)
36 CHU/CCU CONT IN
35 SYNC IN
34 TERMINAL CONT OUT
33 VF Y OUT (X)
32 VF Y OUT (G)
31 BARS ON IN
30 CLAMP IN
29 BLANKING IN
28 ZEBRA CONT 2 OUT
27 VTR SYNC OUT
26 BARS CLOCK IN
25 ZEBRA CONT 1 OUT
24 BF IN
23 L.ALT.IN
22 HD IN
21 CAMERA ID IN
20 GND
19 VTR B OUT (X)
18 VTR G OUT (X)
17 VTR R OUT (X)
16 RM VBS OUT
15 GND
14 VBS OUT (X)
13 VBS OUT (G)
12 ZEBRA ON IN
11 Y/R-Y/B-Y OUT (G)
10 B-Y OUT (X)
9 R-Y OUT (X)
8 Y OUT (X)
7 +8.8V IN
6 +5V IN
5 +5V IN
4 +7V IN
3 +7V IN
2 GND
1 GND
SG
50 GND
49 GND
48 -2.5V IN
47 -2.5V IN
46 -5V IN
45 NC
44 NC
43 GENLOCK ON/OFF IN
42 TEST SAW OUT
41 NC
40 PRE BLK OUT
39 GND
38 VBS TEST IN (X)
37 VBS TEST IN (G)
36 SC OUT (G)
35 SC OUT (X)
34 TERMINAL CONT IN
33 V CLAMP OUT
32 SYNC OUT
31 BARS ON IN
30 CLAMP OUT
29 BLANKING OUT
28 BARS CLOCK OUT (G)
27 BARS CLOCK OUT (X)
26 ZEBRA CLOCK OUT
25 ZEBRA CLOCK OUT (G)
24 B.F.OUT
23 L.ALT.OUT
22 HD OUT
21 VD OUT
20 AGC PULSE OUT
19 FIELD PULSE OUT
18 CCU (RGB)/VBS IN
17 CCU ON OUT
16 CF OUT/V.RESET IN
15 SAMPLE PULSE OUT
14 14MHz OUT (G)
13 14MHz OUT (X)
12 ZEBRA ON CONT IN
11 TEST ON CONT IN
10 REF PULSE IN
9 VBS GENLOCK IN (G)
8 VBS GENLOCK IN (X)
7 +8.8V IN
6 +5V IN
5 +5V IN
4 +7V IN
3 +7V IN
2 GND
1 GND
50P-C CN112
MIC OUT (X) 1
MIC OUT (Y) 2
MIC OUT (G) 3
50PIN A CN111
B-Y OUT (G) 1
B-Y OUT (X) 2
NC 3
VTR SAVE OUT 4
AUDIO CONT OUT 5
AUDIO MONITOR IN 6
GND 7
SB IN/OUT 8
GND 9
R-Y OUT (G) 10
R-Y OUT (X) 11
GND 12
VBS OUT (G) 13
VBS OUT (X) 14
PB REF IN 15
VTR S/S OUT 16
GND 17
Y OUT (X) 18
Y OUT (G) 19
GND 20
B OUT (X) 21
B OUT (G) 22
GND 23
BATT.IND.IN 24
50PIN B CN110
G OUT (X) 1
G OUT (G) 2
R OUT (G) 3
R OUT (X) 4
GND 5
GND 6
REC ALARM/TALLY IN 7
TAPE IND 2 IN 8
G TALLY/TAPE IND 1 IN 9
RET EN OUT 10
CF OUT/VR IN 11
-5V OUT 12
-5V OUT 13
ZEBRA/AUDIO IN 14
+8.8V OUT 15
+8.8V OUT 16
RET VIDEO IN (G) 17
RET VIDEO IN (X) 18
GND 19
GND 20
SYNC OUT 21
NC 22
VBS GENLOCK IN (G) 23
VBS GENLOCK IN (X) 24
CN776
CN402 (1/3)
1 INT MIC IN (X)
2 INT MIC IN (Y)
3 INT MIC IN (G)
CN403 (1/24)
1 B-Y IN (G)
2 B-Y IN (X)
3 NC
4 VTR SAVE IN
5 AUDIO CONT IN
6 AUDIO MONITOR OUT
7 GND
8 SB IN/OUT
9 GND
10 R-Y IN (G)
11 R-Y IN (X)
12 GND
13 VBS IN (G)
14 VBS IN (X)
15 PB REF IN
16 VTR S/S IN
17 GND
18 Y IN (X)
19 Y IN (G)
20 GND
21 B IN (X)
22 B IN (G)
23 GND
24 BATT.IND.OUT
CN404 (1/24)
1 G IN (X)
2 G IN (G)
3 R IN (G)
4 R IN (X)
5 GND
6 GND
7 REC ALARM/TALLY OUT
8 TAPE IND 2 OUT
9 G TALLY/TAPE IND 1 OUT
10 RET EN IN
11 CF OUT/VR OUT
12 -5V IN
13 -5V IN
14 ZEBRA/AUDIO OUT
15 +8.8V IN
16 +8.8V IN
17 RET VIDEO OUT (G)
18 RET VIDEO OUT (X)
19 GND
20 GND
21 SYNC IN
22 NC
23 VBS GENLOCK IN (G)
24 VBS GENLOCK IN (X)
CN401 (1/50)
50 B-Y OUT (G)
17 INT MIC OUT (Y)
49 B-Y OUT (X)
33 AUDIO MONITOR IN
16 INT MIC OUT (X)
48 NC
32 VTR SAVE OUT
15 INT MIC OUT (G)
47 NC
31 AUDIO CONT OUT
14 SB IN/OUT
46 NC
30 R-Y OUT (G)
13 NC
45 NC
29 R-Y OUT (X)
12 NC
44 VBS OUT (G)
28 NC
11 NC
43 VBS OUT (X)
27 VTR S/S OUT
10 R/G/B GND
42 Y OUT (G)
26 PB REF IN
9 B OUT (X)
41 Y OUT (X)
25 BATTERY IND IN
8 G OUT (X)
40 UNREG IN
24 REC ALARM/TALLY IN
7 R OUT (X)
39 UNREG IN
23 TAPE 2 IND IN
6 UNREG GND
38 RET EN OUT
22 G TALLY/TAPE 1 IND IN
5 UNREG GND
37 CF OUT/V RESET IN
21 NC
4 -5V OUT
36 SHUTTLE CLOSE IN
20 ZEBRA/AUDIO IN
3 +8.8V OUT
35 NC
19 RET R IN (G)
2 VBS GENLOCK IN (G) H
34 SYNC OUT
18 RET IN (X)
1 VBS GENLOCK IN (X) SC
CN24 -EXTERNAL SIDE- (MALE)
CN425 (1/8)
1A UNREG OUT
1B UNREG OUT
2A UNREG OUT
2B UNREG OUT
3A UNREG GND
3B UNREG GND
4A UNREG GND
4B UNREG GND
MB-455
RG-C CN119
A1 RM VBS OUT (X)
B1 RM VBS OUT (G)
A2 VBS TEST OUT (X)
B2 VBS TEST OUT (G)
A3 GENLOCK ON/OFF IN
B3 R VIDEO OUT (X)
A4 G VIDEO OUT (X)
B4 G VIDEO OUT (G)
A5 B VIDEO OUT (X)
B5 B VIDEO OUT (G)
A6 GND
B6 SYNC OUT
A7 PRE BLK OUT
RG-A CN118
A1 +7V OUT
B1 +5V OUT
A2 VF Y OUT (G)
B2 VF Y OUT (X)
A3 MENU ON OUT
B3 ZEBRA CLOCK OUT (G)
A4 ZEBRA CLOCK OUT (X)
B4 ZEBRA CONT 1 OUT
A5 ZEBRA CONT 2 OUT
B5 CHARACTOR BLK OUT
A6 CHARACTOR VIDEO OUT (X)
B6 CHARACTOR VIDEO OUT (G)
A7 GND
B7 -2.5V OUT
RG-B CN120
1 VF VIDEO IN (X)
2 VF VIDEO IN (G)
3 CCU ON OUT
4 VBS GENLOCK OUT (X)
5 VBS GENLOCK OUT (G)
6 RET VIDEO OUT (X)
7 RET VIDEO OUT (G)
8 RET EN OUT
9 M.PED IN
10 UNREG OUT
11 UNREG GND
12 DATA IN
CN307
A1 RM VBS IN (X)
B1 GND
A2 VBS TEST IN (X)
B2 VBS TEST IN (G)
A3 GENLOCK ON/OFF OUT
B3 B VIDEO IN (X)
A4 G VIDEO IN (X)
B4 G VIDEO IN (G)
A5 B VIDEO IN (G)
B5 R VIDEO IN (X)
A6 GND
B6 VTR SYNC IN
A7 BLKG IN
RG-31 CN308
MENU ON 1
+5V IN 2
RM VIDEO OUT (X) 3
RM VIDEO OUT (G) 4
RM Y IN 5
NAM VIDEO OUT (X) 6
NAM VIDEO OUT (G) 7
NAM/Y CONT OUT 8
RG/VBS CONT OUT 9
RG VIDEO OUT (X) 10
RG VIDEO OUT (G) 11
GL/RET CONT OUT 12
GND 13
-2.5V IN 14
RG-32 CN301
1 MENU ON
2 +5V OUT
3 RM VIDEO IN (X)
4 RM VIDEO IN (G)
5 RM Y OUT
6 NAM VIDEO IN (X)
7 NAM VIDEO IN (G)
8 NAM/Y CONT IN
9 RG/VBS CONT IN
10 RG VIDEO IN (X)
11 RG VIDEO IN (G)
12 GL/RET CONT IN
13 GND
14 -2.5V OUT
CN304
1 NC
2 +5V IN
3 VF Y IN (G)
4 VF Y IN (X)
5 MENU ON IN
6 ZEBRA CLOCK IN (G)
7 ZEBRA CLOCK IN (X)
8 ZEBRA CONT 1 IN
9 ZEBRA CONT 2 IN
10 CHARACTOR BLK IN
11 CHARACTOR VIDEO IN (X)
12 CHARACTOR VIDEO IN (G)
13 GND
14 -2.5V IN
CN305
1 VF VIDEO OUT (X)
2 VF VIDEO OUT (G)
3 CCU ON IN
4 VBS GENLOCK IN (X)
5 VBS GENLOCK IN (G)
6 RET VIDEO IN (X)
7 RET VIDEO IN (G)
8 RET EN IN
9 M.PED OUT
10 UNREG IN
11 UNREG GND
12 DATA OUT
CN309
1 TEST OUT (G)
2 TEST OUT (X)
TEST OUT CN25 (BNC)
CN302
1 RM VIDEO OUT (X)
2 RM VIDEO OUT (G)
3 UNREG GND
4 UNREG OUT
5 DATA OUT
6 DATA IN
CN303
1 +5V OUT
2 GND
3 M.PED. IN
VR-157
RV1 10k PEDESTAL
1 DATA IN
2 DATA OUT
3 UNREG GND
4 RM VIDEO OUT (X)
5 RM VIDEO OUT (G)
6 UNREG OUT
CN23 REMOTE -EXTERNAL SIDE-
PS-B CN114
20 GND
19 GND
18 +9.3V IN
17 +9.3V IN
16 POWER SAVE IN
15 POWER SAVE OUT
14 +5V IN
13 +5V IN
12 NC
11 NC
10 +5.8V IN
9 +5.8V IN
8 +15V IN
7 +15V IN
6 +10.3V IN
5 -11V IN
4 GND
3 GND
2 GND
1 GND
PS-A CN113
1 GND
2 GND
3 GND
4 GND
5 -5V IN
6 -5V IN
7 -2.5V IN
8 -2.5V IN
9 NC
10 NC
11 +5V IN
12 +5V IN
13 +7V IN
14 +7V IN
15 +8.8V IN
16 +8.8V IN
17 UNREG GND
18 UNREG GND
19 UNREG IN
20 UNREG IN
CNXXX
GND
GND
+9.3V OUT
+9.3V OUT
POWER SAVE IN
POWER SAVE OUT
+5V OUT
+5V OUT
NC
NC
+5.8V OUT
+5.8V OUT
+15V OUT
+15V OUT
+10.3V OUT
-11V OUT
GND
GND
GND
GND
CNXXX
GND
GND
GND
GND
-5V OUT
-5V OUT
-2.5V OUT
-2.5V OUT
NC
NC
+5V OUT
+5V OUT
+7V OUT
+7V OUT
+8.8V OUT
+8.8V OUT
UNREG GND
UNREG GND
UNREG OUT
UNREG OUT
CNXXX (1/8)
1A UNREG IN
1B UNREG IN
2A UNREG IN
2B UNREG IN
3A UNREG GND
3B UNREG GND
4A UNREG GND
4B UNREG GND
DC-DC CONVERTER UNIT
1
2
3
4
5

LP-67 BO

1-643-

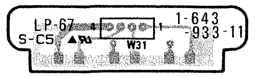
LP-68 BO

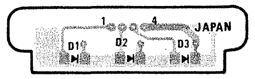
1-643-

LP-69 BO

1-643-935-1

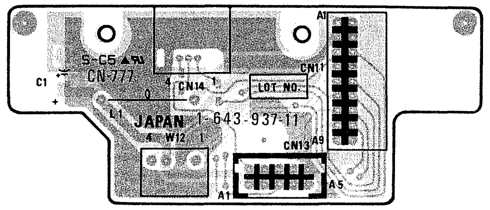
LP-67 BOARD

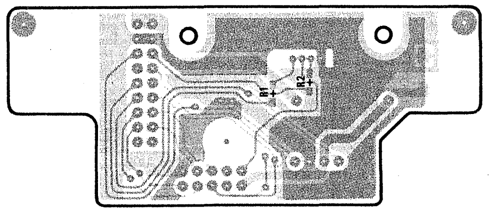

LP-67
S-C5
1-643
-933-11
W31


1
4
JAPAN
D1
D2
D3

1-643-933-11 SOLDERING SIDE

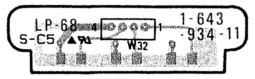
CN-777 BOARD


S-C5
CN-777
CN14
LOT NO.
CN11
JAPAN
1-643-937-11
W12
CN13
C1
L1
A1
A5
A9

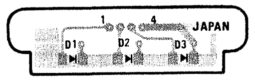


1-643-937-11 SOLDERING SIDE

LP-68 BOARD

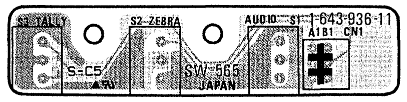

LP-68
S-C5
1-643
-934-11
W32

1-643-934-11 COMPONENT SIDE

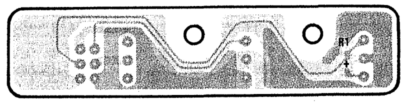

1
4
JAPAN
D1
D2
D3

1-643-934-11 SOLDERING SIDE

SW-565 BOARD

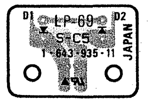

S3 TALLY
S2 ZEBRA
AUDIO S1
1-643-936-11
A1B1 CN1
S-C5
SW-565
JAPAN

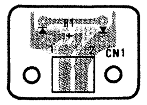
1-643-936-11 COMPONENT SIDE



1-643-936-11 SOLDERING SIDE

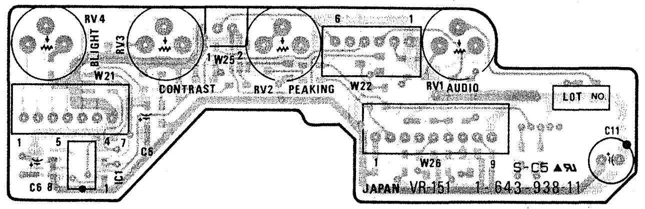
LP-69 BOARD


D1
LP-69
D2
S-C5
1-643-935-11
JAPAN

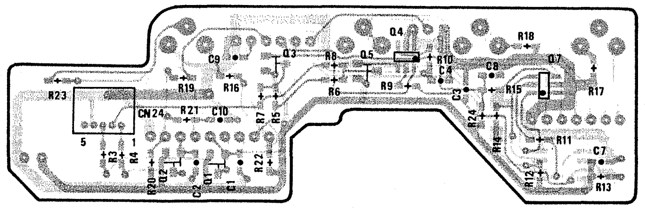


1-643-935-11 SOLDERING SIDE

VR-151 BOARD

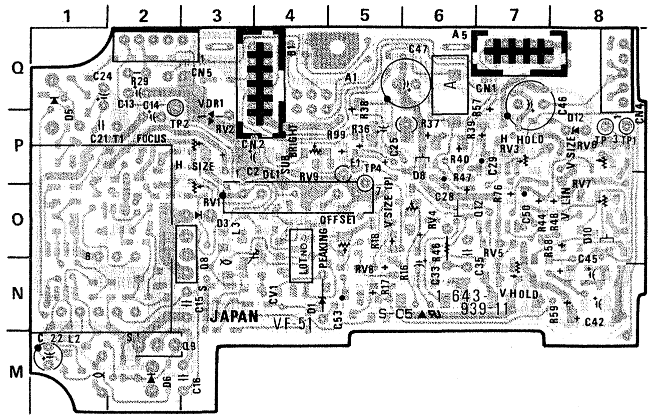

RV4
RV3
BLIGHT
W25
6
1
W21
CONTRAST
RV2
PEAKING
W22
RV1 AUDIO
LOT NO.
C11
C6
W26
S-C5
JAPAN VR-151 1-643-938-11

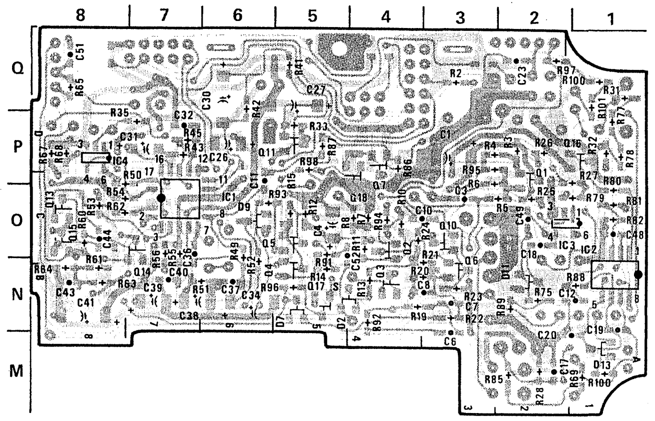
1-643-938-11 COMPONENT SIDE


Q4
R18
C9
Q3
R8
Q5
R10
C8
Q7
R23
R19
R16
R6
R9
R15
R17
CN24
R21
C10
R14
R11
C7
R12
R13
R3
R4
R20

1-643-938-11 SOLDERING SIDE

VF-51 BOARD


1
2
3
4
5
6
7
8
Q
P
O
N
M
C24
R29
CN5
C47
A5
CN1
C13
C14
VDR1
TP2
RV2
CN2
FOCUS
H SIZE
DL1
RV9
TP4
R37
RV3
H HOLD
RV8
V SIZE
RV6
TP1
TP3
RV1
OFFSET
PEAKING
LOT NO.
RV5
RV7
V HOLD
C45
JAPAN
VF-51
1-643-939-11
S-C5
C42
C53
C16
Q8
C22
L2

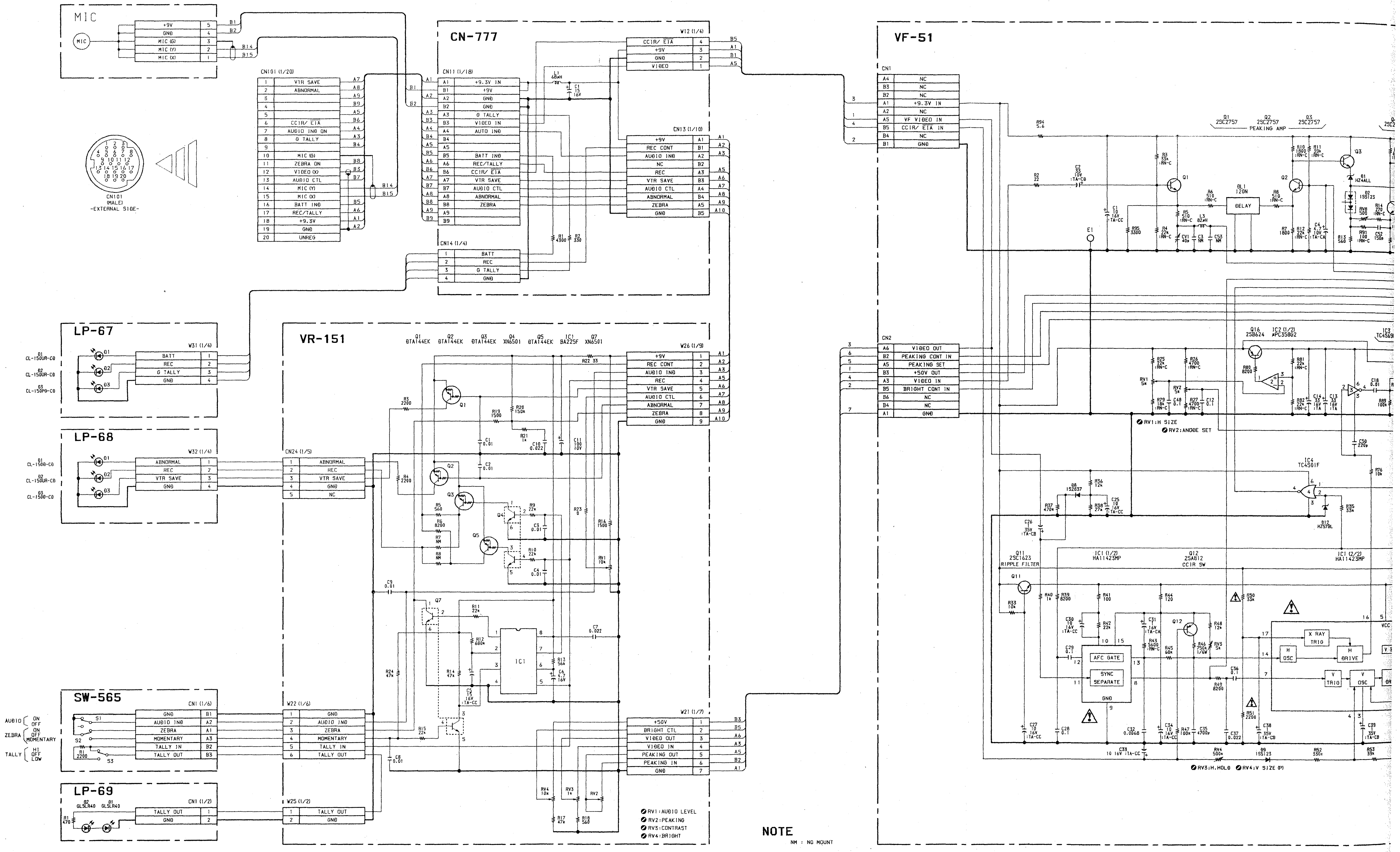

8
7
6
5
4
3
2
1
Q
P
O
N
M
C51
R65
R35
C32
C30
C27
R41
R2
R97
R100
R31
IC4
C26
Q11
R33
R98
Q16
Q1
R28
R27
R80
IC1
Q9
R93
Q18
C10
Q10
C5
IC3
IC2
C48
Q14
C40
R14
Q17
R88
C12
C43
C41
C39
C38
R51
C37
C36
R96
R19
C8
R22
C20
C19
C6
R85
D13
R100

1-643-939-11 SOLDERING SIDE

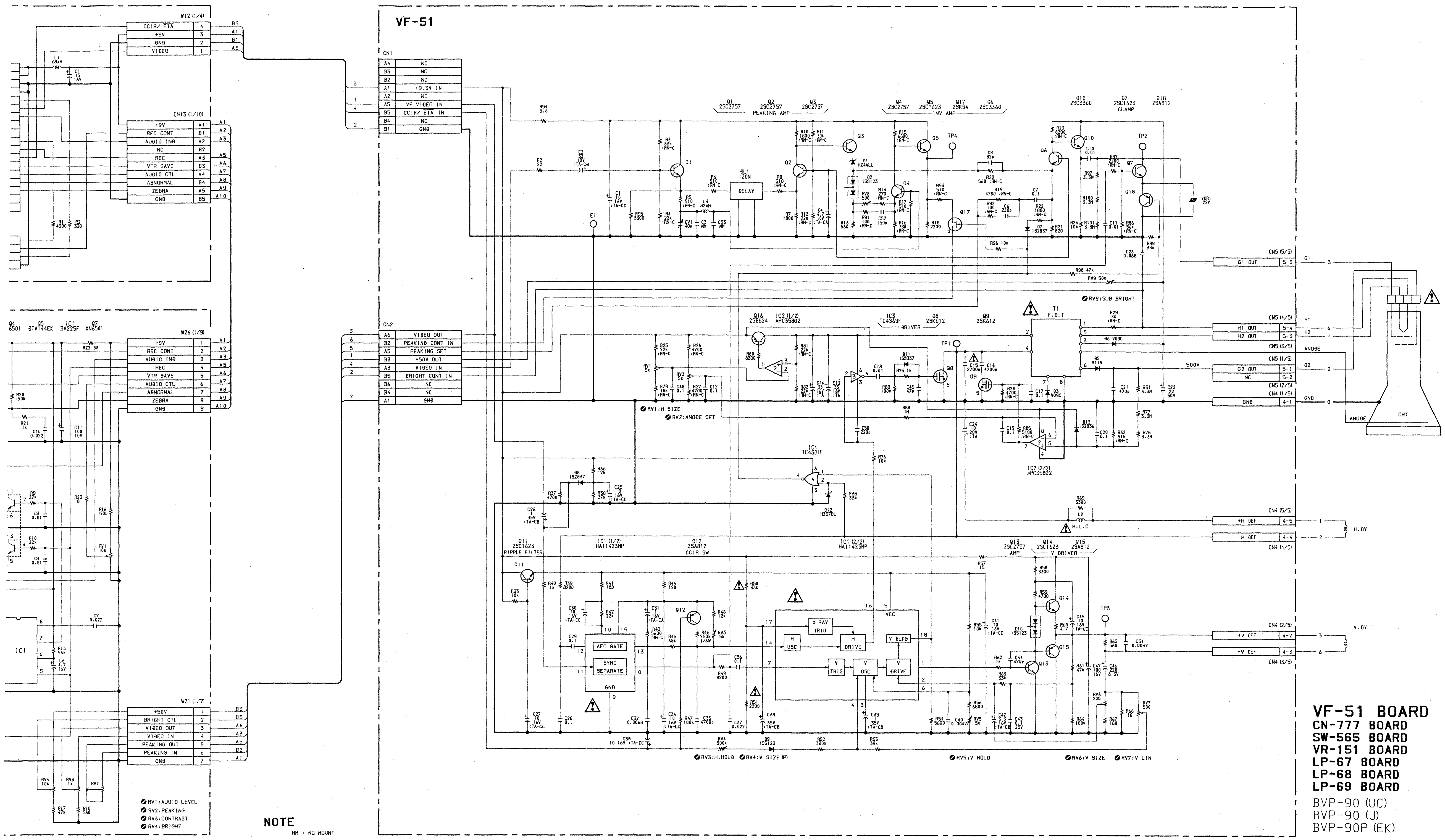
VF - 51 (1 - 643 - 939 - 11)

CN1	Q - 7
CN2	P - 3
CN4	P - 8
CN5	Q - 3
CV1	N - 4
DL1	P - 4
D1	N - 4
D2	N - 5
D3	O - 3
D5	P - 1
D6	M - 2
D7	N - 5
D8	P - 6
D9	O - 6
D10	O - 8
D11	N - 2
D12	P - 8
D13	M - 1
IC1	O - 6
IC2	O - 1
IC3	O - 2
IC4	P - 8
Q1	P - 2
Q2	O - 4
Q3	N - 4
Q4	N - 6
Q5	O - 6
Q6	N - 3
Q7	P - 4
Q8	N - 3
Q9	M - 3
Q10	O - 3
Q11	P - 6
Q12	O - 6
Q13	O - 8
Q14	N - 7
Q15	O - 8
Q16	P - 1
Q17	N - 5
Q18	O - 4
RV1	O - 3
RV2	P - 3
RV3	P - 7
RV4	O - 6
RV5	O - 7
RV6	P - 8
RV7	O - 8
RV8	N - 5
RV9	P - 4
TP1	P - 8
TP2	P - 2
TP3	P - 8
TP4	P - 5
T1	P - 2
VDR1	Q - 3

VIEWFINDER
CN-777 BOARD
LP-67 BOARD
LP-68 BOARD
LP-69 BOARD
SW-565 BOARD
VF-51 BOARD
VR-151 BOARD


MIC
CN-777
VR-151
VF-51
LP-67
LP-68
SW-565
LP-69
CN101 (MALE) -EXTERNAL SIDE-
CN101 (1/20)
CN11 (1/18)
CN13 (1/10)
CN14 (1/4)
W12 (1/4)
W26 (1/9)
W21 (1/7)
W22 (1/6)
W25 (1/2)
CN24 (1/5)
W31 (1/4)
W32 (1/4)
CN1
CN2
VTR SAVE
ABNORMAL
CCIR/ EIA
AUDIO IND ON
G TALLY
MIC (G)
ZEBRA ON
VIDEO (X)
AUDIO CTL
MIC (Y)
MIC (X)
BATT IND
REC/TALLY
+9.3V
GND
UNREG
VIDEO IN
VF VIDEO IN
VIDEO OUT
PEAKING CONT IN
PEAKING SET
+50V OUT
BRIGHT CONT IN
BRIGHT CTL
PEAKING OUT
PEAKING IN
TALLY OUT
TALLY IN
MOMENTARY
ZEBRA
REC
BATT
NC
AUDIO ON OFF
ZEBRA ON OFF MOMENTARY
TALLY HI OFF LOW
PEAKING AMP
DELAY
RIPPLE FILTER
CCIR SW
AFC GATE
SYNC SEPARATE
H OSC
H DRIVE
X RAY TRIG
V TRIG
V OSC
RV1:AUDIO LEVEL
RV2:PEAKING
RV3:CONTRAST
RV4:BRIGHT
RV1:H SIZE
RV2:ANODE SET
RV3:H.HOLD
RV4:V SIZE (P)

NOTE
NM : NO MOUNT


VF-51
W12 (1/4)
CCIR/ EIA
+9V
GND
VIDEO
CN13 (1/10)
REC CONT
AUDIO IND
NC
REC
VTR SAVE
AUDIO CTL
ABNORMAL
ZEBRA
W26 (1/9)
+9V
REC CONT
AUDIO IND
REC
VTR SAVE
AUDIO CTL
ABNORMAL
ZEBRA
GND
W21 (1/7)
+50V
BRIGHT CTL
VIDEO OUT
VIDEO IN
PEAKING OUT
PEAKING IN
GND
CN1
+9.3V IN
VF VIDEO IN
CCIR/ EIA IN
CN2
VIDEO OUT
PEAKING CONT IN
PEAKING SET
+50V OUT
VIDEO IN
BRIGHT CONT IN
PEAKING AMP
INV AMP
CLAMP
DELAY
F.B.T
DRIVER
RIPPLE FILTER
CCIR SW
AFC GATE
SYNC SEPARATE
X RAY TRIG
H OSC
H DRIVE
V BLKG
V TRIG
V OSC
V DRIVE
VCC
AMP
V DRIVER
G1 OUT
H1 OUT
H2 OUT
G2 OUT
ANODE
CRT
+H DEF
-H DEF
+V DEF
-V DEF
H.DY
V.DY
H.L.C
RV1:H SIZE
RV2:ANODE SET
RV3:H.HOLD
RV4:V SIZE (P)
RV5:V HOLD
RV6:V SIZE
RV7:V LIN
RV9:SUB BRIGHT
RV1:AUDIO LEVEL
RV2:PEAKING
RV3:CONTRAST
RV4:BRIGHT
500V

NOTE
NM : NO MOUNT

VF-51 BOARD
CN-777 BOARD
SW-565 BOARD
VR-151 BOARD
LP-67 BOARD
LP-68 BOARD
LP-69 BOARD
BVP-90 (UC)
BVP-90 (J)
BVP-90P (EK)

SECTION D
SPARE PARTS

PARTS INFORMATION

1. **Safety Related Component Warning**

   Components indentified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare pars list are critical to safe operation. Replace these components with Sony parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to **"accommodating the improved part and/or engineering changes" or "standardization of genuine parts".** This manual 's exploded view and electrical spare parts lists are indicating the parts number of "the standardized genuine parts at present". Regarding engineering parts and diagrams changes in our engineering department, refer SECTION 9 CHANGE INFORMATION.

3. The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. All capacitors are in micro farads unless otherwise specified.
   All inductors are in micro henries unless otherwise specified.
   All resistors are in ohms.

EXPLODED VIEW

FRONT BLOCK

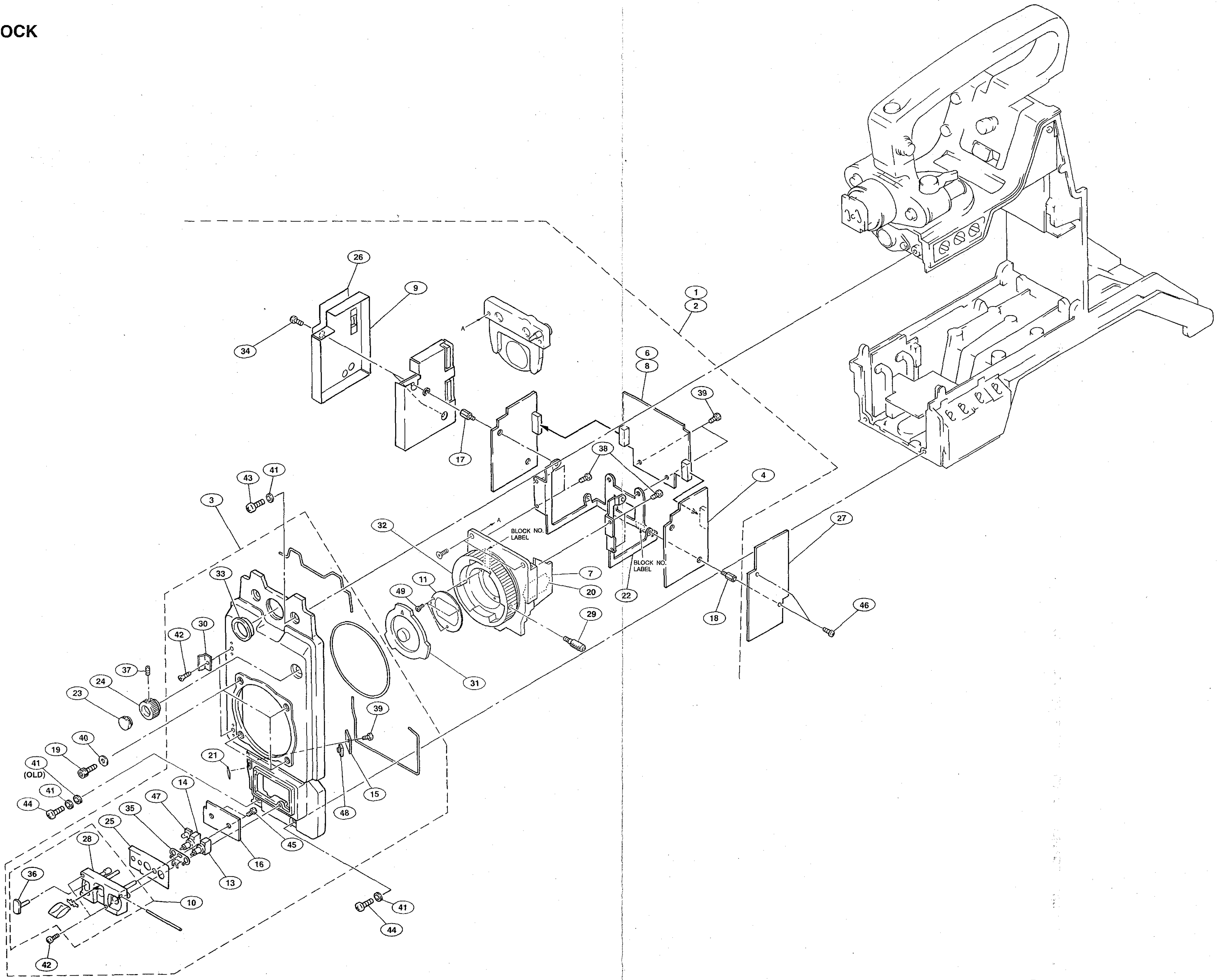
No.	Part No.	SP	Description
1	A-7575-211-A	s	CCD UNIT-P90(N) (for BVP-90) *1
2	A-7575-212-A	s	CCD UNIT-P90P(P) (for BVP-90P) *2
3	A-8262-786-A	o	PANEL ASSY, FRONT
4	A-8271-611-A	o	MOUNTED CIRCUIT BOARD, DR-201
6	A-8271-613-A	o	MOUNTED CIRCUIT BOARD, TG-123 (for BVP-90)
7	A-8271-615-A	o	MOUNTED CIRCUIT BOARD, CN-775
8	A-8271-628-A	o	MOUNTED CIRCUIT BOARD, TG-123P (for BVP-90P)
9	X-3166-853-1	o	COVER ASSY, SHIELD RP
10	X-3722-439-4	o	PLATE (B) ASSY, ORNAMENTAL, SW
11	1-547-579-11	o	FILTER UNIT, OPTICAL
13	1-554-395-00	s	SWITCH, TOGGLE "AUTO W/B BAL"
14	1-554-396-00	s	SWITCH, TOGGLE "SHUTTER"
15	1-644-972-11	o	PRINTED CIRCUIT BOARD, SW-572
16	1-644-973-11	o	PRINTED CIRCUIT BOARD, SW-573
17	2-270-601-11	o	SUPPORT
18	2-270-601-21	o	SUPPORT
19	2-623-773-11	s	BOLT (M3X8), STAINLESS
20	3-177-413-01	o	SHEET (CN), COOL
21	3-177-417-01	o	LABEL (RET)
22	3-177-451-01	o	STAY (A), PC BOARD
23	3-177-457-01	s	KNOB (ND), FILTER
24	3-177-458-01	s	KNOB (CC), FILTER
25	3-178-364-01	o	PLATE (FRONT), SHIELD, SW
26	3-178-497-01	o	PLATE, BLIND, RP
27	3-178-498-01	o	COVER, DR
28	3-676-244-11	o	COVER, SW
29	3-678-629-00	s	LEVER, MOUNT
30	3-678-684-00	o	HOLDER, CABLE
31	3-699-048-01	s	CAP, MOUNT
32	3-708-562-01	o	RING, BAYONET
33	3-710-024-01	o	PACKING, VF
34	3-711-767-01	s	SCREW, STOPPER
35	3-729-068-01	o	PLATE (FR), SHIELD
36	3-729-069-01	s	BUTTON, VTR START
37	7-621-732-09	s	SET-SCT HEX. 2X3 WP
38	7-621-771-06	s	SCREW +B 2X5
39	7-621-773-86	s	SCREW +B 2.6X4
40	7-623-208-22	s	SW 3,TYPE 2
41	7-623-310-07	s	LW 4, TYPE A
42	7-627-556-58	s	SCREW +P 2.6X5
43	7-682-562-09	s	SCREW +B 4X10
44	7-682-565-09	s	SCREW +B 4X16
45	7-685-134-19	s	SCREW +P 2.6X8 TYPE2 NON-SLIT
46	7-627-556-38	s	SCREW +P2.6X4
47	1-570-282-21	s	SWITCH, KEYBOARD "VTR START"
48	1-570-472-11	s	SWITCH, KEYBOARD "RET"
49	7-627-452-38	s	SCREW, PRECISION +K2X5

*1 CCD BLOCK NUMBER; E A A xxxxx
*2 CCD BLOCK NUMBER; E B A xxxxx

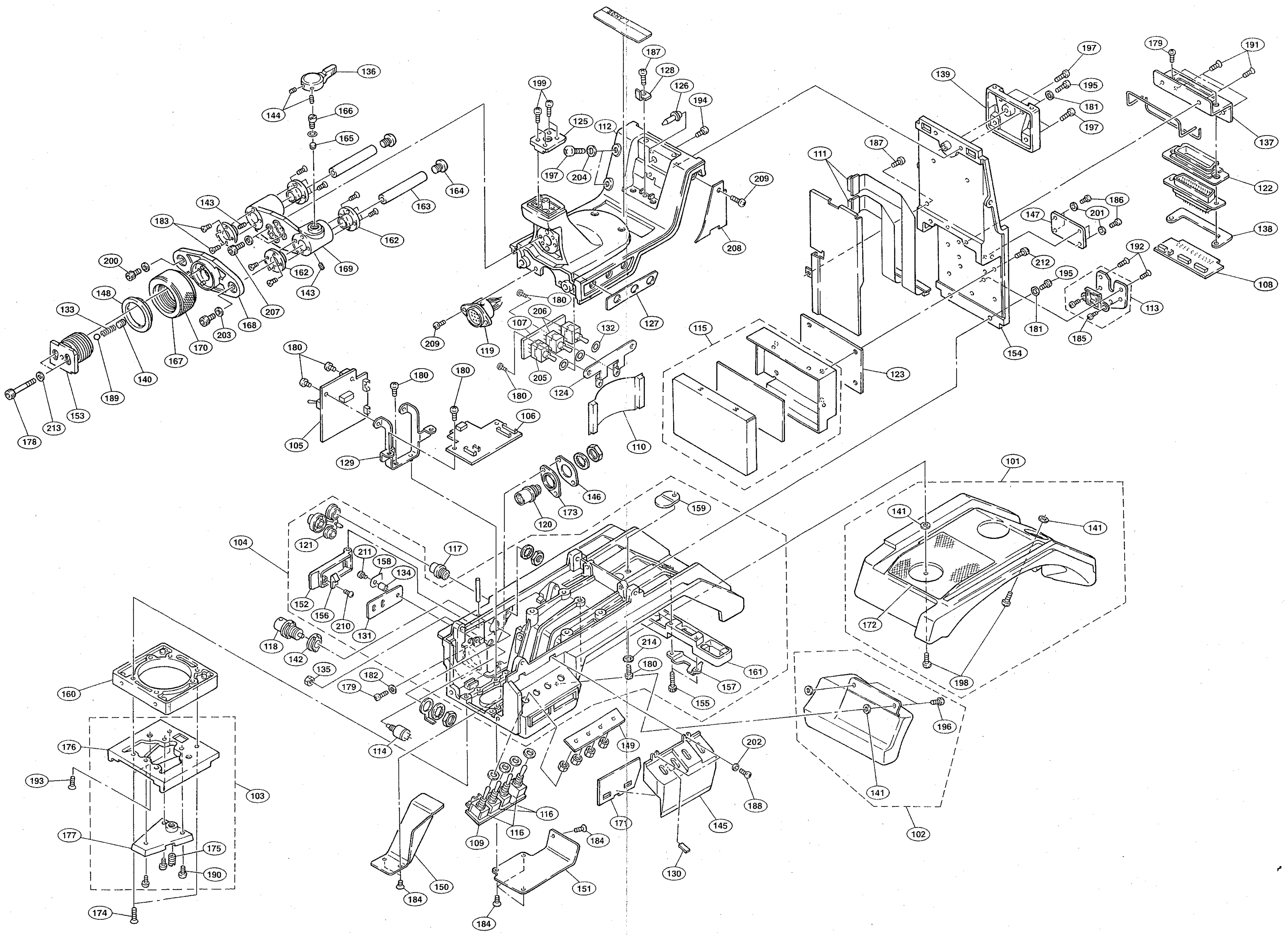
How to read the CCD BLOCK NUMBER

```
E A A xxxxx
┬ ┬ ┬ ─┬───
│ │ │  └─── Block number of CCD unit
│ │ └─────Suffix of spare part number
│ └─────Model name (A: BVP-90, B: BVP-90P)
└─CCD type
```

FRONT BLOCK


A
A
BLOCK NO. LABEL
BLOCK NO. LABEL
(OLD)

CHASSIS BLOCK


136
144
166
165
164
163
143
183
162
169
162
143
200
148
133
207
167
170
203
168
140
189
153
213
178
199
187
128
126
194
125
112
197
204
209
208
127
180
206
107
132
209
119
205
180
124
110
180
106
180
105
129
197
179
191
139
195
181
197
137
187
111
122
186
147
201
138
212
192
195
108
113
181
185
154
115
123
101
141
141
172
198
159
146
173
120
104
117
121
211
158
134
152
156
210
131
118
142
135
214
180
161
157
155
182
179
160
114
176
193
103
177
175
190
174
149
202
188
196
141
102
116
116
109
171
145
130
184
150
151
184
184

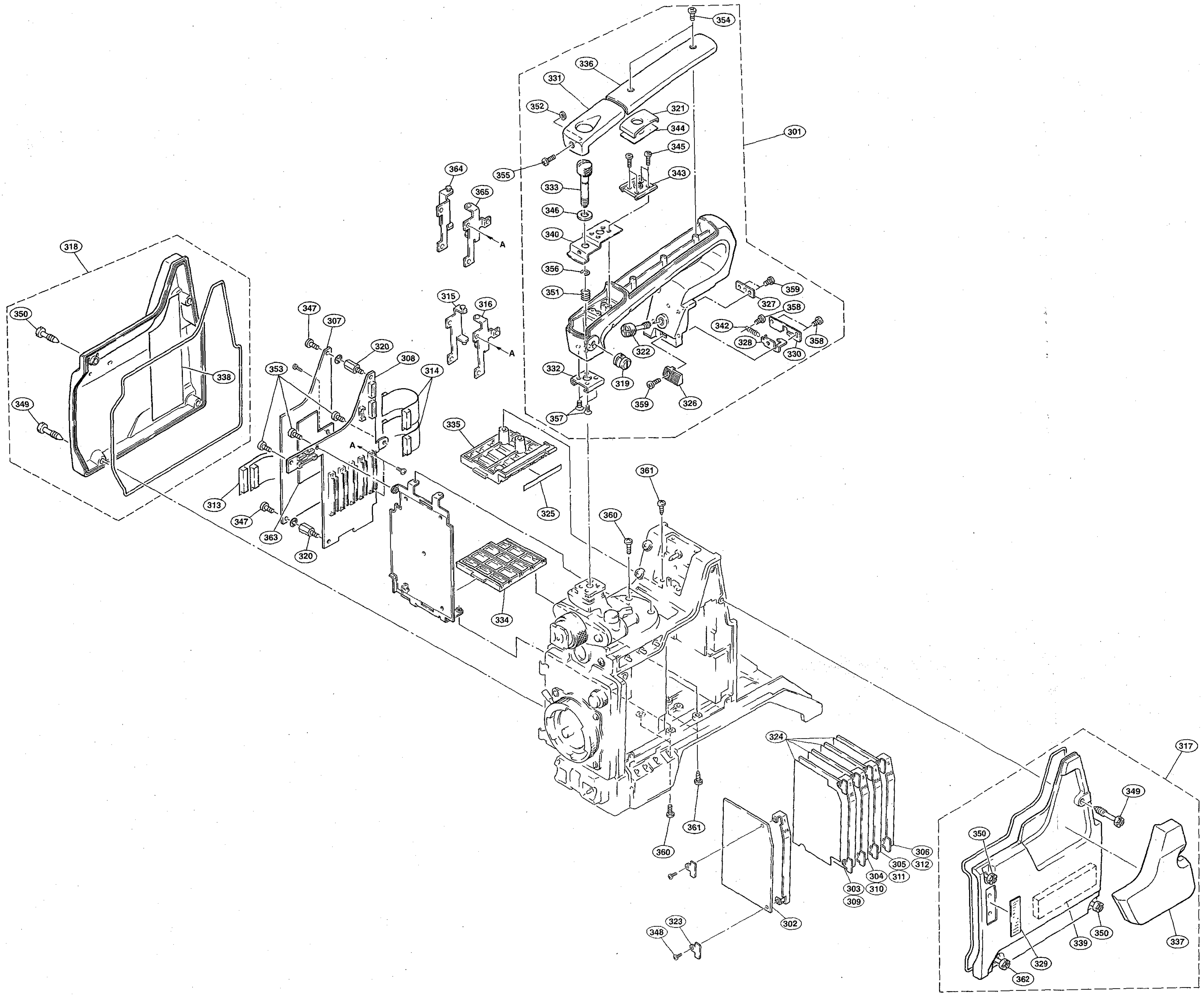
CHASSIS BLOCK

No.	Part No.	SP	Description
101	A-7612-312-C	s	PAD ASSY (2), SHOULDER
102	A-7612-321-A	s	PAD (SMALL) ASSY, SHOULDER
103	A-7612-385-A	s	SHOE (B) ASSY, V
104	A-8262-795-A	o	CHASSIS BLOCK ASSY (2), BASE
105	A-8271-618-A	o	MOUNTED CIRCUIT BOARD, RG-31
106	A-8271-619-A	o	MOUNTED CIRCUIT BOARD, RG-32
107	A-8276-425-A	o	MOUNTED CIRCUIT BOARD, SW-571
108	A-8276-426-A	o	MOUNTED CIRCUIT BOARD, CN-776
109	A-8276-428-A	o	MOUNTED CIRCUIT BOARD, SW-570
110	A-8276-429-A	s	WIRE, FLEXIBLE CARD, FL-148
111	A-8276-430-A	s	WIRE, FLEXIBLE CARD, FL-145
112	X-3166-870-1	o	PANEL SUB ASSY, TOP
113	X-3710-026-1	o	STOPPER ASSY
114	1-223-165-00	s	RES, ADJ, WOUND 10K "PEDESTAL"
115	⚠1-466-768-11	s	CONVERTER UNIT, DC-DC
116	1-554-356-00	s	SWITCH, TOGGLE "CAMERA/VTR" "GAIN" "OUTPUT" "WHITE BAL"
117	1-562-222-41	s	CONNECTOR 6P, FEMALE "REMOTE"
118	1-562-261-21	o	CONNECTOR, COAXIAL (BNC) "TEST OUT"
119	1-565-051-11	o	CONNECTOR, ROUND (WITH C) 20P, FEMALE "VF"
120	1-695-841-11	s	CONNECTOR,12P, FEMALE "LENS"
121	3-168-893-01	o	PACKING (BNC), DROP PROTECTION
122	3-173-270-01	o	PACKING (50P), DROP PROTECTION
123	3-177-407-01	o	SHEET (PS), COOL
124	3-177-409-02	o	BRACKET (VF IND)
125	3-177-414-01	o	SHOE, TOP
126	3-177-416-01	s	PIN, POSITIONING
127	3-177-420-01	o	LABEL (VF IND)
128	3-177-421-01	o	PLATE, LOCK
129	3-177-425-01	o	PLATE, FIXED, RG
130	3-177-437-01	o	LABEL, GAIN
131	3-177-438-01	o	PLATE, INDICATION, RG
132	3-312-823-00	s	PACKING, KNOB
133	3-641-622-00	s	SPRING, COMPRESSION
134	3-659-365-00	s	SPACER (4X3)
135	3-664-519-00	o	NUT (M4)
136	3-673-046-00	s	LEVER, LOCK
137	3-675-902-21	o	BRACKET (A), CONNECTOR
138	3-675-929-00	o	NUT (50P), PLATE
139	3-675-958-12	o	SHOE, C
140	3-682-760-01	o	SCREW (M7-0.75), ADJUSTMENT
141	3-687-116-01	o	WASHER (4), STOPPER
142	3-692-444-01	o	SPACER, BNC INSULATING
143	3-701-506-01	s	SET SCREW, DOUBLE POINT 3X4
144	3-701-508-00	s	SET SCREW, DOUBLE POINT 3X6
145	3-710-001-02	o	COVER, SW INDICATION
146	3-710-002-01	o	BRACKET
147	3-710-017-01	o	PLATE, PROTECTION
148	3-710-018-01	s	COLLAR, SLIDE
149	3-710-027-01	o	SHEET, BLIND
150	3-710-029-02	o	LID (B), B
151	3-710-030-01	o	LID (A), B
152	3-710-031-01	o	COVER, SWITCH
153	3-710-039-03	s	SHOE, SLIDE
154	3-710-047-21	o	PLATE, REAR
155	3-710-050-11	s	BOLT (M2.6X15), HEXAGON HOLE
156	3-710-093-01	o	SPACER, SWITCH
157	3-711-703-01	o	STOPPER
158	3-711-727-01	o	SPRING, LEAF
159	3-711-760-01	o	SPRING
160	3-711-788-01	o	SPACER, P5
161	3-711-789-01	o	SPACER, REAR
162	3-711-790-01	o	SPACER (A)
163	3-711-791-01	o	ARM
164	3-711-792-01	o	SCREW
165	3-711-793-01	o	CUSHION (STOPPER)
166	3-711-794-01	o	PIN, STOPPER
167	3-711-795-01	o	RING (B), LOCK
168	3-711-796-03	o	TABEL, FIXED, VF SHOE
169	3-711-797-07	o	TABEL, FIXED, VF SLIDE
170	3-720-919-01	o	RUBBER, LOCK RING
171	3-720-960-01	o	PACKING, SWITCH
172	3-720-964-01	o	NET (2)
173	3-725-297-01	o	SPACER (LENS)
174	3-729-072-11	s	SCREW, +K (4X20)
175	3-742-011-01	s	SCREW, 1/4, 3/8 CONVERSION
176	3-742-012-01	s	SHOE (B), CAMERA
177	3-742-015-01	o	WEDGE (B), MOUNTING
178	4-904-818-01	s	BOLT (3X25), HEXAGON HOLE
179	7-621-770-67	s	SCREW +B 2.6X6
180	7-621-773-86	s	SCREW +B 2.6X4
181	7-623-308-07	s	LW 3, TYPE (A)
182	7-623-421-07	s	LW 2.6, TYPE B
183	7-627-452-58	s	SCREW +K 2X6 TYPE1
184	7-627-454-38	s	SCREW, PRECISION +K 2.6X5
185	7-627-553-17	s	SCREW,PRECISION +P 2X2
186	7-627-553-48	s	SCREW,PRECISION +P 2X4
187	7-627-556-58	s	SCREW +P 2.6X5
188	7-627-556-78	s	SCREW,PRECISION +P 2.6X6 TYPE1
189	7-671-115-01	s	BALL, STEEL
190	7-682-160-09	s	SCREW +P 4X6
191	7-682-246-09	s	SCREW +K 3X5
192	7-682-247-04	s	SCREW +K 3X6
193	7-682-261-09	s	SCREW +K 4X8
194	7-682-544-09	s	SCREW +B 3X3
195	7-682-548-04	s	SCREW +B 3X8
196	7-682-560-09	s	SCREW +B 4X6
197	7-682-561-09	s	SCREW +B 4X8
198	7-682-562-09	s	SCREW +B 4X10
199	7-683-412-05	s	BOLT,HEXAGON SOCKET 2.6X6
200	7-683-419-04	s	BOLT,HEXAGON SOCKET 4X8
201	7-688-001-02	s	W 2, SMALL
202	7-688-002-02	s	W 2.6, SMALL
203	7-688-004-02	s	W 4, SMALL
204	7-688-004-12	s	W 4, MIDDLE
205	1-570-985-11	s	SWITCH, TOGGLE
206	1-571-396-11	s	SWITCH, TOGGLE
207	2-990-375-11	s	BOLT(M3X10), HEXAGON SOCKET
208	3-178-496-01	o	PLATE, BLIND
209	7-621-775-20	s	SCREW +B2.6X5
210	7-627-553-37	s	SCREW, PRECISION +P2X3
211	7-627-556-97	s	SCREW, PRECISION +P2.6X8 TYPE1
212	7-682-546-09	s	SCREW +B3X5
213	7-623-208-22	s	SW3, TYPE 2
214	7-623-422-07	s	LW3, TYPE B

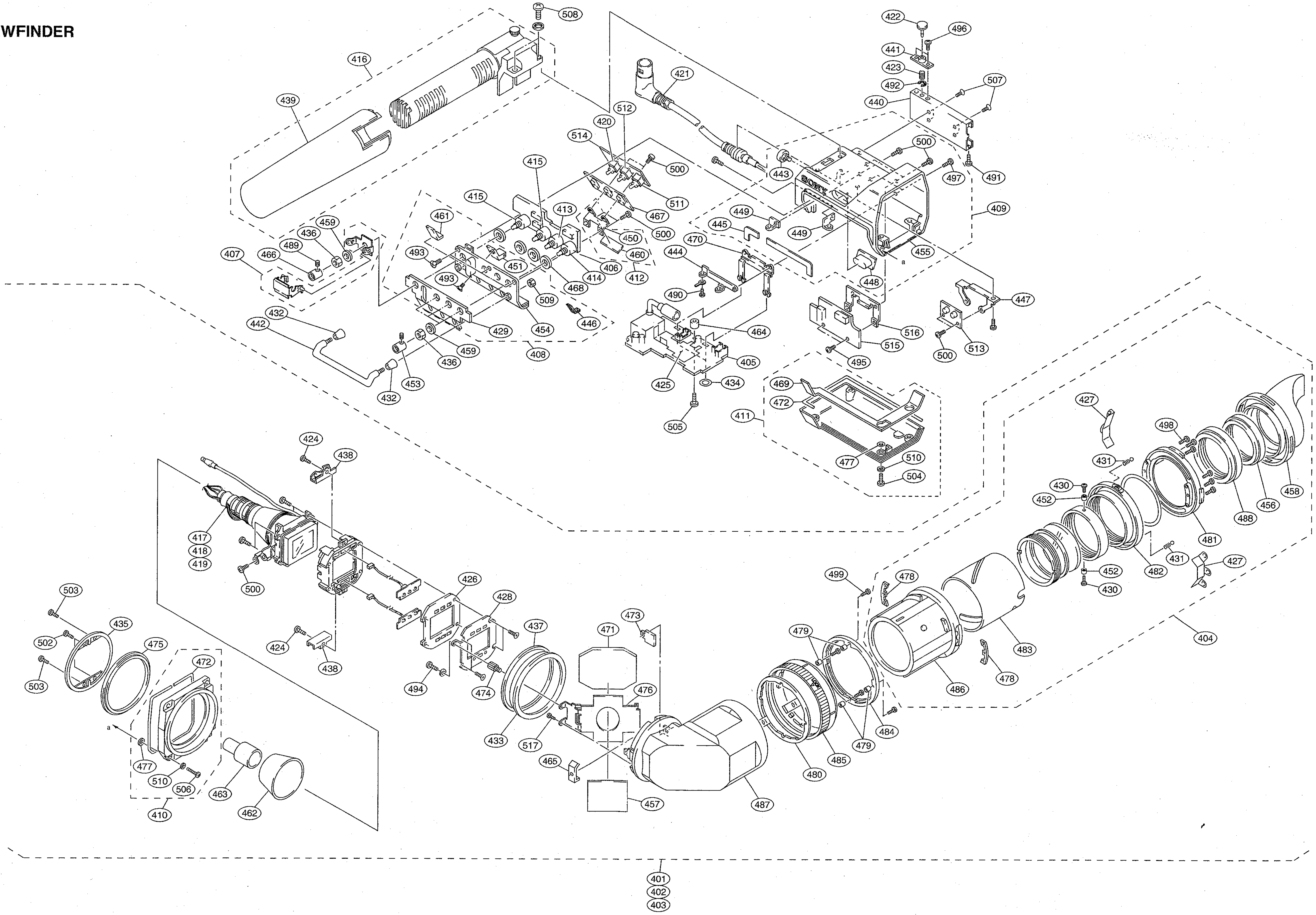
BOARD BLOCK

No.	Part No.	SP	Description
301	A-8262-791-A	o	HANDLE ASSY
302	A-8271-620-A	o	MOUNTED CIRCUIT BOARD, VA-132
303	A-8271-621-A	o	MOUNTED CIRCUIT BOARD, IE-39 (for BVP-90)
304	A-8271-622-A	o	MOUNTED CIRCUIT BOARD, PR-179U (for BVP-90:UC)
305	A-8271-623-A	o	MOUNTED CIRCUIT BOARD, EN-107 (for BVP-90)
306	A-8271-624-A	o	MOUNTED CIRCUIT BOARD, SG-206 (for BVP-90)
307	A-8271-625-A	o	MOUNTED CIRCUIT BOARD, AT-77
308	A-8271-626-A	o	MOUNTED CIRCUIT BOARD, MB-455
309	A-8271-630-A	o	MOUNTED CIRCUIT BOARD, IE-39P (for BVP-90P)
310	A-8271-631-A	o	MOUNTED CIRCUIT BOARD, PR-179 (for BVP-90:J, BVP-90P:EK)
311	A-8271-632-A	o	MOUNTED CIRCUIT BOARD, EN-107P (for BVP-90P)
312	A-8271-633-A	o	MOUNTED CIRCUIT BOARD, SG-206P (for BVP-90P)
313	A-8276-431-A	s	WIRE, FLEXIBLE CARD, FL-146
314	A-8276-432-A	s	WIRE, FLEXIBLE CARD, FL-147
315	X-3166-854-1	o	HINGE (AT) ASSY, PC BOARD Ser.No. 10001 to 10064 (for BVP-90;UC) Ser.No. 30001 to 30035 (for BVP-90;J) Ser.No. 40001 to 40067 (for BVP-90P)
316	X-3166-855-1	o	HINGE (HN) ASSY, PC BOARD Ser.No. 10001 to 10064 (for BVP-90;UC) Ser.No. 30001 to 30035 (for BVP-90;J) Ser.No. 40001 to 40067 (for BVP-90P)
317	X-3166-866-2	o	PANEL ASSY, LIGHT
318	X-3166-867-2	o	PANEL ASSY, LEFT
319	X-3710-037-1	o	SUSPENSION ASSY (C)
320	2-270-601-00	o	SUPPORT
321	2-277-468-01	o	PLATE, ORNAMENTAL, CAMERA SHOE
322	2-359-964-11	s	SCREW
323	3-175-429-01	s	KNOB, PULL OUT
324	3-177-408-02	o	PLATE, SHIELD
325	3-177-410-01	o	LABEL (CARD PC BOARD)
326	3-177-419-01	o	KNOB, RELEASE
327	3-177-423-01	o	PLATE, POSITIONING
328	3-177-424-01	s	PLATE, RELEASE
329	3-177-426-01	o	LABEL, FILTER
330	3-177-427-01	o	COVER
331	3-177-428-01	s	COVER, ACCESSORY
332	3-177-429-01	o	SHOE, HANDLE
333	3-177-430-01	o	SCREW (F)
334	3-177-452-01	o	RAIL (B), PC BOARD
335	3-177-453-01	o	RAIL (T), PC BOARD
336	3-177-454-01	o	COVER, HANDLE
337	3-177-460-01	s	PAD
338	3-178-490-01	o	SHEET (LEFT PANEL), INSULATING
339	3-178-491-01	o	CUSHION (RIGHT PANEL)
340	3-178-495-01	o	PLATE, INNER, HANDLE
342	3-491-244-12	s	SPRING, TENSION
343	3-657-700-00	s	BRACKET, ACCESSORY
344	3-672-213-00	o	SHEET, ADHESIVE
345	3-689-039-11	s	BOLT (M2X6), HOLE, HEXAGON
346	3-701-445-11	s	WASHER, 7
347	3-711-767-01	s	SCREW, STOPPER
348	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
349	3-729-091-01	s	SCREW (M4X17.5)
350	3-729-091-31	s	SCREW (M4X10)
351	3-735-858-01	s	SPRING, COMPRESSION
352	3-742-004-01	s	RING, NYLON
353	7-621-773-86	s	SCREW +B 2.6X4
354	7-621-775-20	s	SCREW +B 2.6X5
355	7-621-775-40	s	SCREW +B 2.6X8
356	7-624-110-04	s	STOP RING 6.0, TYPE -E
357	7-627-452-58	s	SCREW +K 2X6 TYPE1
358	7-627-553-48	s	SCREW,PRECISION +P 2X4
359	7-627-556-58	s	SCREW +P 2.6X5
360	7-682-546-09	s	SCREW +B 3X5
361	7-685-533-19	s	SCREW +BTP 2.6X6 TYPE2 N-S
362	3-729-091-51	s	SCREW (M4X13)
363	3-179-009-01	o	SHEET (AT), SHIELD
364	X-3166-854-2	o	HINGE (AT) ASSY, PC BOARD Ser.No. 10065 and up (for BVP-90;UC) Ser.No. 30036 and up (for BVP-90;J) Ser.No. 40068 and up (for BVP-90P)
365	X-3166-855-2	o	HINGE (HN) ASSY, PC BOARD Ser.No. 10065 and up (for BVP-90;UC) Ser.No. 30036 and up (for BVP-90;J) Ser.No. 40068 and up (for BVP-90P)

BOARD BLOCK


A
A
A

VIEWFINDER


a
a
SONY

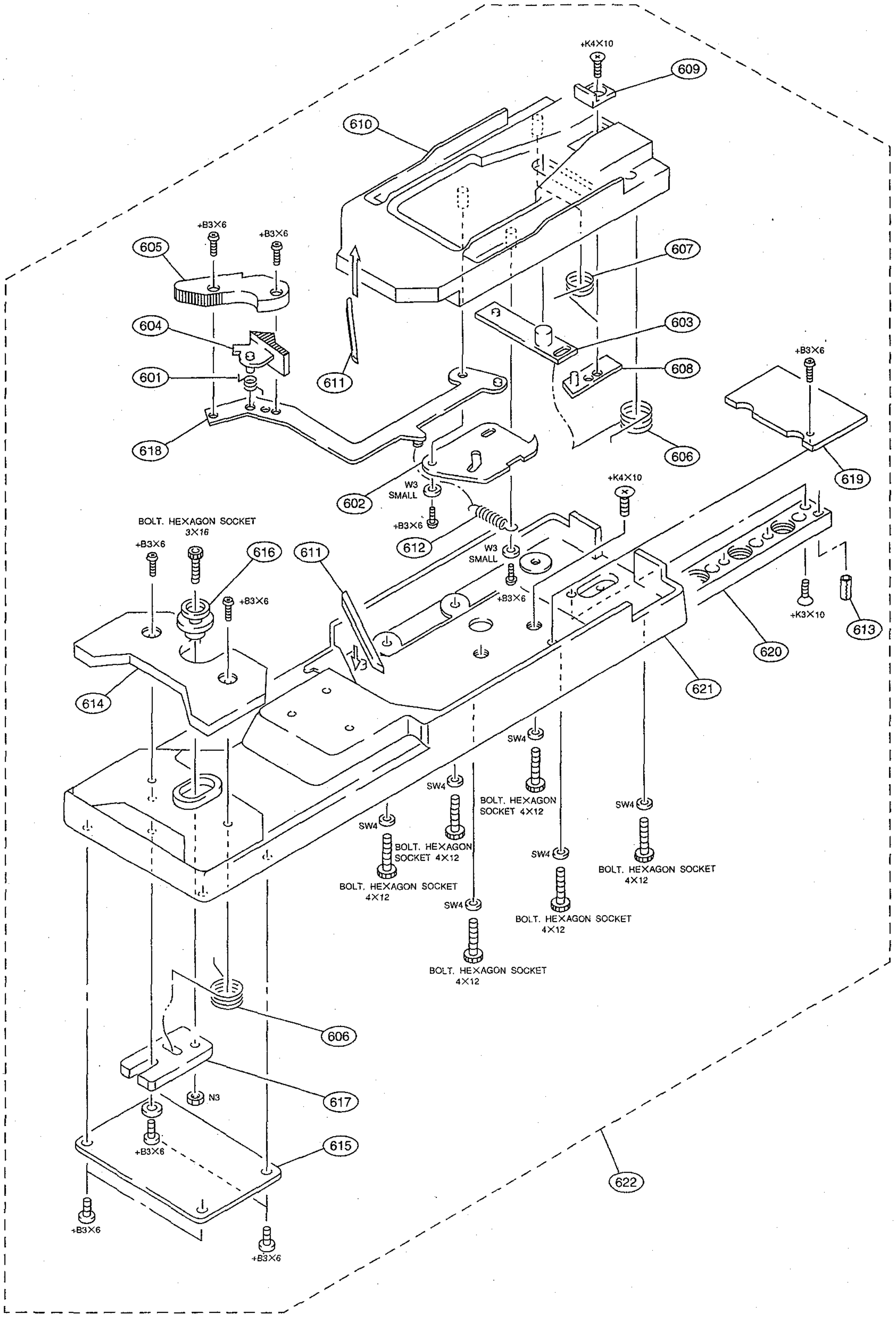
VIEWFINDER

No.	Part No.	SP	Description
401	⚠A-8260-398-A	o	VF COMPLETE ASSY (for BVP-90:UC)
402	⚠A-8260-400-A	o	VF COMPLETE ASSY (for BVP-90P:EK)
403	⚠A-8260-402-A	o	VF COMPLETE ASSY (for BVP-90:J)
404	A-8262-798-A	s	TUBE SUB ASSY, VF
405	⚠A-8271-627-A	o	MOUNTED CIRCUIT BOARD, VF-51
406	A-8276-434-A	o	MOUNTED CIRCUIT BOARD, VR-151
407	X-3166-692-1	s	GUARD ASSY, VR
408	X-3166-857-1	o	BRACKET ASSY (D), VR SW
409	X-3710-050-5	o	VF (MAIN) BLOCK ASSY
410	X-3722-366-8	o	TUBE ASSY, VF ROTARY GUIDE
411	X-3722-368-5	o	LID ASSY, VF
412	X-3722-426-1	o	BRACKET ASSY, SW
413	1-238-290-11	s	RES, VAR CARBON 1K "CONTRAST"
414	1-238-293-11	s	RES, VAR CARBON 10K "BRIGHT"
415	1-238-296-11	s	RES, VAR CARBON 10K "AUDIO LEVEL CH-1" "PEAKING"
416	1-542-106-11	s	MICROPHONE
417	⚠1-546-092-11	s	1.5" CRT ASSY (for BVP-90:J)
418	⚠1-546-092-31	s	1.5" CRT ASSY (for BVP-90:UC)
419	⚠1-546-092-41	s	1.5" CRT ASSY (for BVP-90P:EK)
420	1-570-984-11	s	SWITCH, TOGGLE
421	1-950-550-11	s	HARNESS (VF CABLE)
422	2-277-457-00	s	KNOB, STOPPER
423	2-277-466-01	s	SPRING, COMPRESSION
424	3-165-162-01	s	SCREW (+P2.6X5) (TYPE1)
425	3-166-307-01	o	PLATE, SHIELD
426	3-176-022-02	o	SPACER (B), MASK
427	3-176-414-01	o	RETAINER, RING
428	3-177-462-01	o	PLATE (329), DISPLAY
429	3-178-432-01	o	LABEL, SW VR
430	3-335-207-01	s	SHAFT, MOTOR
431	3-573-150-00	o	SPRING, COMPRESSION
432	3-657-654-00	o	RING, ORNAMENTAL
433	3-672-241-00	o	RING (B), SLEEVE
434	3-672-250-00	o	RING (M2.6), O
435	3-680-595-01	o	SUPPORT, ROTARY
436	3-685-104-01	s	NUT (M6), CONTROL
437	3-685-118-01	o	SPACER, RING
438	3-685-129-01	o	SPRING (N), LEAF, VF
439	3-707-587-01	s	SCREEN ASSY, WIND
440	3-710-007-02	s	GUIDE, VF SLIDE
441	3-710-008-02	s	HOUSING, STOPPER
442	3-716-342-02	o	GUARD, CONNECTOR
443	3-720-946-01	o	PIN, MICROPHONE STOPPER
444	3-720-974-04	o	BRACKET (2), PC BOARD
445	3-720-977-01	o	PACKING (A), DROP PROTECTION
446	3-720-978-01	s	PACKING (B), DROP PROTECTION
447	3-722-474-05	o	BRACKET, LP
448	3-722-475-04	o	COVER (A)
449	3-722-476-01	o	NUT, PLATE
450	3-722-477-01	o	BRACKET, SW
451	3-722-481-04	o	HOLDER, PC BOARD
452	3-722-485-01	o	ROLLER, SLIDE
453	3-722-486-21	s	KNOB
454	3-722-494-01	o	BRACKET, VR SW
455	3-723-002-14	o	VF (MAIN)
456	3-723-069-02	o	PROTECTOR, MC
457	3-723-073-01	o	CUSHION, MIRROR
458	3-723-079-01	s	EYE CUP
459	3-724-744-03	o	WASHER
460	3-724-745-01	o	SHEET (C), INSULATING
461	3-724-746-01	o	SHEET (B), INSULATING
462	3-725-220-02	o	TUBE (A), CRT
463	3-725-221-04	o	TUBE (B), CRT
464	3-725-257-01	o	BOSS
465	3-725-258-03	o	STOPPER, ROTARY
466	3-725-277-11	s	KNOB (B)
467	3-725-278-01	s	PACKING (SW), DROP PROTECTION
468	3-725-279-01	s	PACKING (VR), DROP PROTECTION
469	3-725-280-01	s	PACKING (A), DROP PROTECTION
470	3-725-282-14	o	HINGE, PC BOARD
471	3-729-099-01	o	MIRROR
472	3-729-701-21	s	RUBBER (CARBON), CONDUCTIVE
473	3-734-739-01	o	SHEET, INSULATING, MASK
474	3-734-740-01	o	SUPPORT
475	3-734-760-01	o	RING
476	3-742-001-02	o	HOLDER (2), MIRROR
477	3-742-004-01	s	RING, NYLON
478	3-742-038-01	o	NUT (2), PLATE
479	3-742-045-01	o	TUBE
480	3-742-046-01	o	BRACKET, SAFETY
481	3-742-052-01	o	HOLDER, EYE CUP
482	3-742-053-01	o	RING
483	3-742-054-01	o	TUBE
484	3-742-058-01	o	RING, FIXED
485	3-742-059-01	o	RING, HOLD
486	3-742-060-01	o	HOLDER, RING
487	3-742-062-01	o	TUBE (2), VF
488	3-742-075-01	o	HOLDER, FILTER
489	7-621-732-09	s	SET-SCT HEX. 2X3 WP
490	7-621-772-08	s	SCREW +B 2X3
491	7-621-775-20	s	SCREW +B 2.6X5
492	7-624-102-04	s	STOP RING 1.5, TYPE -E
493	7-627-454-38	s	SCREW, PRECISION +K 2.6X5
494	7-627-553-27	s	SCREW,PRECISION +P 2X2.5
495	7-627-553-47	s	SCREW,PRECISION +P 2X4
496	7-627-553-48	s	SCREW,PRECISION +P 2X4
497	7-627-553-68	s	SCREW,PRECISION +P 2X6
498	7-627-553-78	s	SCREW,PRECISION +P 2X10
499	7-627-553-98	s	SCREW,PRECISION +P 2X8
500	7-627-556-37	s	SCREW,PRECISION +P2.6X4 TYPE 1
502	7-627-556-77	s	SCREW,PRECISION +P2.6X6 TYPE 1
503	7-627-556-97	s	SCREW,PRECISION +P2.6X8 TYPE 1
504	7-627-556-98	s	SCREW,PRECISION +P 2.6X8 TYPE1
505	7-627-557-47	s	SCREW,PRECISION +P2.6X10 TYPE1
506	7-627-557-48	s	SCREW,PRECISION +P2.6X10 TYPE1
507	7-682-247-09	s	SCREW +K 3X6
508	7-682-562-09	s	SCREW +B 4X10
509	7-684-023-04	s	N 3, TYPE 2
510	7-688-002-02	s	W 2.6, SMALL
511	1-570-985-11	s	SWITCH, TOGGLE
512	1-570-986-11	s	SWITCH, TOGGLE
513	1-643-935-11	o	PRINTED CIRCUIT BOARD, LP-69
514	1-643-936-11	o	PRINTED CIRCUIT BOARD, SW-565
515	1-643-937-11	o	PRINTED CIRCUIT BOARD, CN-777
516	3-742-205-02	o	BRACKET, CN
517	7-627-553-37	S	SCREW +P2X3

VCT-14

No.	Parts No.	SP	Description
601	2-381-631-01	o	SPRING
602	2-381-632-01	o	ARM, LOCKER
603	2-381-633-01	o	SOLENOID
604	2-381-635-01	o	LEVER, LOCK
605	2-381-636-01	o	KNOB
606	2-381-637-01	o	SPRING
607	2-381-638-01	o	SPRING
608	2-381-640-01	o	DOG
609	2-381-641-01	o	COLLAR
610	2-381-642-02	o	MOUNT
611	2-381-648-01	o	INSULATOR, KNOB
612	2-381-652-01	o	SPRING, TENSION
613	2-381-654-01	o	PIN, SPRING
614	3-678-704-00	o	SPACER
615	3-720-906-01	o	LID (S), REAR
616	3-720-907-01	o	PIN (S), REAR
617	3-720-908-01	o	TABLE (S), PIN, REAR
618	3-720-909-01	o	KNOB, CRANK
619	3-720-910-01	o	SHEET, SLIDE
620	3-720-911-01	o	BASE, TRIPOD FITTING SCREW
621	3-720-912-01	o	FRAME (S)
622	OPTIONAL ACCESSARY: TRIPOD ADAPTOR "VCT-14"		

TRIPOD ADAPTOR


+K4×10
609
610
605
+B3×6
+B3×6
607
604
603
601
611
608
+B3×6
618
606
619
602
W3 SMALL
+B3×6
+K4×10
612
W3 SMALL
+B3×6
BOLT, HEXAGON SOCKET 3×16
+B3×6
616
611
+B3×6
+K3×10
613
620
614
621
SW4
SW4
BOLT, HEXAGON SOCKET 4×12
SW4
SW4
BOLT, HEXAGON SOCKET 4×12
SW4
BOLT, HEXAGON SOCKET 4×12
BOLT, HEXAGON SOCKET 4×12
SW4
BOLT, HEXAGON SOCKET 4×12
BOLT, HEXAGON SOCKET 4×12
606
617
N3
+B3×6
615
622
+B3×6
+B3×6

CAPACITOR, CHIP CERAMIC

Part No.	SP	Description
1-163-082-00	s	CAP, CHIP CERAMIC 0.5pF +-0.25pF 50V
1-163-083-00	s	CAP, CHIP CERAMIC 1pF +-0.25pF 50V
1-163-085-00	s	CAP, CHIP CERAMIC 2pF +-0.25pF 50V
1-163-087-00	s	CAP, CHIP CERAMIC 4pF +-0.25pF 50V
1-163-089-00	s	CAP, CHIP CERAMIC 6pF +-0.5pF 50V
1-163-091-00	s	CAP, CHIP CERAMIC 8pF +-0.5pF 50V
1-163-093-00	s	CAP, CHIP CERAMIC 10pF 5% 50V
1-163-097-00	s	CAP, CHIP CERAMIC 15pF 5% 50V
1-163-101-00	s	CAP, CHIP CERAMIC 22pF 5% 50V
1-163-105-00	s	CAP, CHIP CERAMIC 33pF 5% 50V
1-163-109-00	s	CAP, CHIP CERAMIC 47pF 5% 50V
1-163-113-00	s	CAP, CHIP CERAMIC 68pF 5% 50V
1-163-117-00	s	CAP, CHIP CERAMIC 100pF 5% 50V
1-163-121-00	s	CAP, CHIP CERAMIC 150pF 5% 50V
1-163-125-00	s	CAP, CHIP CERAMIC 220pF 5% 50V
1-163-129-00	s	CAP, CHIP CERAMIC 330pF 5% 50V
1-163-133-00	s	CAP, CHIP CERAMIC 470pF 5% 50V
1-163-137-00	s	CAP, CHIP CERAMIC 680pF 5% 50V
1-163-141-00	s	CAP, CHIP CERAMIC 1000pF 5% 50V
1-163-145-00	s	CAP, CHIP CERAMIC 1500pF 10% 50V
1-164-161-11	s	CAP, CHIP CERAMIC 2200pF 10% 100V
1-164-182-11	s	CAP, CHIP CERAMIC 3300pF 10% 100V
1-163-017-00	s	CAP, CHIP CERAMIC 4700pF 10% 50V
1-163-019-00	s	CAP, CHIP CERAMIC 6800pF 10% 50V
1-164-232-11	s	CAP, CHIP CERAMIC 0.01 20% 100V
1-163-023-00	s	CAP, CHIP CERAMIC 0.015 10% 50V
1-163-034-00	s	CAP, CHIP CERAMIC 0.033 50V
1-163-035-00	s	CAP, CHIP CERAMIC 0.047 50V
1-163-036-00	s	CAP, CHIP CERAMIC 0.068 50V
1-163-038-00	s	CAP, CHIP CERAMIC 0.1 50V

RESISTOR, CHIP METAL

Part No.	SP	Description
1-216-603-11	s	RES, CHIP METAL 10 1% 1/10W
1-216-605-11	s	RES, CHIP METAL 12 1% 1/10W
1-216-609-11	s	RES, CHIP METAL 18 1% 1/10W
1-216-611-11	s	RES, CHIP METAL 22 1% 1/10W
1-216-614-11	s	RES, CHIP METAL 30 1% 1/10W
1-216-617-11	s	RES, CHIP METAL 39 1% 1/10W
1-216-619-11	s	RES, CHIP METAL 47 1% 1/10W
1-216-620-11	s	RES, CHIP METAL 51 1% 1/10W
1-216-623-11	s	RES, CHIP METAL 68 1% 1/10W
1-216-624-11	s	RES, CHIP METAL 75 1% 1/10W
1-216-625-11	s	RES, CHIP METAL 82 1% 1/10W
1-216-626-11	s	RES, CHIP METAL 91 1% 1/10W
1-216-627-11	s	RES, CHIP METAL 100 1% 1/10W
1-216-629-11	s	RES, CHIP METAL 120 1% 1/10W
1-216-630-11	s	RES, CHIP METAL 130 1% 1/10W
1-216-631-11	s	RES, CHIP METAL 150 1% 1/10W
1-216-633-11	s	RES, CHIP METAL 180 1% 1/10W
1-216-634-11	s	RES, CHIP METAL 200 1% 1/10W
1-216-635-11	s	RES, CHIP METAL 220 1% 1/10W
1-216-636-11	s	RES, CHIP METAL 240 1% 1/10W
1-216-637-11	s	RES, CHIP METAL 270 1% 1/10W
1-216-638-11	s	RES, CHIP METAL 300 1% 1/10W
1-216-639-11	s	RES, CHIP METAL 330 1% 1/10W
1-216-640-11	s	RES, CHIP METAL 360 1% 1/10W
1-216-641-11	s	RES, CHIP METAL 390 1% 1/10W
1-216-642-11	s	RES, CHIP METAL 430 1% 1/10W
1-216-643-11	s	RES, CHIP METAL 470 1% 1/10W
1-216-644-11	s	RES, CHIP METAL 510 1% 1/10W
1-216-645-11	s	RES, CHIP METAL 560 1% 1/10W
1-216-647-11	s	RES, CHIP METAL 680 1% 1/10W
1-216-648-11	s	RES, CHIP METAL 750 1% 1/10W
1-216-649-11	s	RES, CHIP METAL 820 1% 1/10W
1-216-650-11	s	RES, CHIP METAL 910 1% 1/10W
1-216-651-11	s	RES, CHIP METAL 1.0k 1% 1/10W
1-216-652-11	s	RES, CHIP METAL 1.1k 1% 1/10W
1-216-653-11	s	RES, CHIP METAL 1.2k 1% 1/10W
1-216-655-11	s	RES, CHIP METAL 1.5k 1% 1/10W
1-216-656-11	s	RES, CHIP METAL 1.6k 1% 1/10W
1-216-657-11	s	RES, CHIP METAL 1.8k 1% 1/10W
1-216-658-11	s	RES, CHIP METAL 2k 1% 1/10W
1-216-659-11	s	RES, CHIP METAL 2.2k 1% 1/10W
1-216-660-11	s	RES, CHIP METAL 2.4k 1% 1/10W
1-216-661-11	s	RES, CHIP METAL 2.7k 1% 1/10W
1-216-662-11	s	RES, CHIP METAL 3k 1% 1/10W
1-216-663-11	s	RES, CHIP METAL 3.3k 1% 1/10W
1-216-664-11	s	RES, CHIP METAL 3.6k 1% 1/10W
1-216-665-11	s	RES, CHIP METAL 3.9k 1% 1/10W
1-216-666-11	s	RES, CHIP METAL 4.3k 1% 1/10W
1-216-667-11	s	RES, CHIP METAL 4.7k 1% 1/10W
1-216-668-11	s	RES, CHIP METAL 5.1k 1% 1/10W

RESISTOR, CHIP METAL

Part No.	SP	Description
1-216-669-11	s	RES, CHIP METAL 5.6k 1% 1/10W
1-216-670-11	s	RES, CHIP METAL 6.2k 1% 1/10W
1-216-671-11	s	RES, CHIP METAL 6.8k 1% 1/10W
1-216-672-11	s	RES, CHIP METAL 7.5k 1% 1/10W
1-216-673-11	s	RES, CHIP METAL 8.2k 1% 1/10W
1-216-674-11	s	RES, CHIP METAL 9.1k 1% 1/10W
1-216-675-11	s	RES, CHIP METAL 10k 1% 1/10W
1-216-676-11	s	RES, CHIP METAL 11k 1% 1/10W
1-216-677-11	s	RES, CHIP METAL 12k 1% 1/10W
1-216-678-11	s	RES, CHIP METAL 13k 1% 1/10W
1-216-679-11	s	RES, CHIP METAL 15k 1% 1/10W
1-216-680-11	s	RES, CHIP METAL 16k 1% 1/10W
1-216-681-11	s	RES, CHIP METAL 18k 1% 1/10W
1-216-682-11	s	RES, CHIP METAL 20k 1% 1/10W
1-216-683-11	s	RES, CHIP METAL 22k 1% 1/10W
1-216-684-11	s	RES, CHIP METAL 24k 1% 1/10W
1-216-685-11	s	RES, CHIP METAL 27k 1% 1/10W
1-216-686-11	s	RES, CHIP METAL 30k 1% 1/10W
1-216-687-11	s	RES, CHIP METAL 33k 1% 1/10W
1-216-688-11	s	RES, CHIP METAL 36k 1% 1/10W
1-216-689-11	s	RES, CHIP METAL 39k 1% 1/10W
1-216-690-11	s	RES, CHIP METAL 43k 1% 1/10W
1-216-691-11	s	RES, CHIP METAL 47k 1% 1/10W
1-216-692-11	s	RES, CHIP METAL 51k 1% 1/10W
1-216-693-11	s	RES, CHIP METAL 56k 1% 1/10W
1-216-694-11	s	RES, CHIP METAL 62k 1% 1/10W
1-216-695-11	s	RES, CHIP METAL 68k 1% 1/10W
1-216-696-11	s	RES, CHIP METAL 75k 1% 1/10W
1-216-697-11	s	RES, CHIP METAL 82k 1% 1/10W
1-216-698-11	s	RES, CHIP METAL 91k 1% 1/10W
1-216-699-11	s	RES, CHIP METAL 100k 1% 1/10W

AT-77 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-625-A	o	MOUNTED CIRCUIT BOARD, AT-77
1pc	1-540-194-11	s	SOCKET, IC
1pc	7-627-554-28	s	SCREW, PRECISION +P 2X5 TYPE1
1pc	3-711-767-01	s	SCREW, STOPPER
1pc	1-540-224-21	o	SOCKET, IC
1pc	3-711-767-01	s	SCREW, STOPPER
2pcs	3-669-595-00	s	WASHER (2), STOPPER
2pcs	7-627-556-38	s	SCREW +P 2.6X4.0
1pc	3-179-009-01	o	SHEET (AT), SHIELD
C1	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C5	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C6	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C8	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C10	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C11	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C12	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C15	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C16	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C19	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C20	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C21	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C22	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C23	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C24	1-124-584-00	s	ELECT 100uF 20% 10V
C25	1-124-584-00	s	ELECT 100uF 20% 10V
C26	1-124-584-00	s	ELECT 100uF 20% 10V
C27	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C28	1-135-180-21	s	TANTAL 3.3uF 20% 6.3V
C29	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C30	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C31	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C32	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C33	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C34	1-131-388-00	s	TANTALUM 68uF 10% 6.3V
C35	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C36	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C37	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C38	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C39	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C40	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C41	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C42	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C43	1-135-145-11	s	TANTALUM, CHIP 0.47uF 10% 35V
C44	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C45	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C46	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C47	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C48	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C49	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C50	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C51	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C52	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C53	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C54	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C55	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C56	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C57	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C58	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C59	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C60	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C61	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C62	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C63	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C64	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C65	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C66	1-135-145-11	s	TANTALUM, CHIP 0.47uF 10% 35V
C70	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C71	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C72	1-125-486-11	s	DOUBLE LAYERS 0.22F 5.5V
C73	1-162-667-11	s	CERAMIC 10PF 5% 50V
C74	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
CN1	1-568-360-11	s	CONNECTOR, BOARD TO BOARD 22P
CN2	1-568-360-11	s	CONNECTOR, BOARD TO BOARD 22P
CN3	1-568-360-11	s	CONNECTOR, BOARD TO BOARD 22P
CN4	1-568-360-11	s	CONNECTOR, BOARD TO BOARD 22P
CV1	1-141-449-51	s	CAP, ADJ 25PF
D2	8-719-974-76	s	DIODE HSM107S
D3	8-719-105-99	s	DIODE RD6.2M-B1
D6	8-719-974-76	s	DIODE HSM107S
D7	8-719-974-76	s	DIODE HSM107S
D8	8-719-974-76	s	DIODE HSM107S
D9	8-719-974-76	s	DIODE HSM107S
D12	8-719-974-76	s	DIODE HSM107S
D13	8-719-800-76	s	DIODE 1SS226
D14	8-719-974-76	s	DIODE HSM107S
D16	8-719-800-76	s	DIODE 1SS226
D17	8-719-800-76	s	DIODE 1SS226
D18	8-719-800-76	s	DIODE 1SS226
D20	8-719-800-76	s	DIODE 1SS226
D21	8-719-800-76	s	DIODE 1SS226
D22	8-719-800-76	s	DIODE 1SS226
D23	8-719-800-76	s	DIODE 1SS226
D24	8-719-104-34	s	DIODE 1S2836
D25	8-719-974-76	s	DIODE HSM107S
IC1	8-759-076-06	s	IC TL064CPW
IC2	8-759-038-46	s	IC SC7S00F
IC3	8-759-076-06	s	IC TL064CPW
IC4	8-759-076-06	s	IC TL064CPW
IC5	8-759-011-65	s	IC MC74HC4053F
IC6	8-759-059-50	s	IC MB88351PFV
IC7	8-759-059-50	s	IC MB88351PFV
IC8	8-759-035-93	s	IC TC7S32F
IC10	8-759-242-64	s	IC TC4W53F
IC11	8-759-234-77	s	IC TC4S66F
IC12	8-759-605-18	s	IC CX-518
IC13	8-759-242-64	s	IC TC4W53F
IC14	8-759-242-64	s	IC TC4W53F
IC16	8-759-146-45	s	IC UPD4711AGS
IC17	8-759-234-77	s	IC TC4S66F
IC18	8-759-234-77	s	IC TC4S66F
IC19	8-759-234-77	s	IC TC4S66F
IC22	8-759-234-77	s	IC TC4S66F
IC21	8-759-234-77	s	IC TC4S66F

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(AT-77 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC23	8-759-011-64	s	IC MC74HC4052F
IC24	8-759-720-78	s	IC UPD6254GS-BA1
IC25	8-759-918-65	s	IC TL7700CPS
IC26	8-759-234-20	s	IC TC7S08F
IC27	8-759-071-41	s	IC CXD8154BM
IC28	8-759-035-90	s	IC SC7S02F
IC29	8-759-035-90	s	IC SC7S02F
IC32	8-759-049-70	s	IC SN74HC138APW
IC33	9-910-999-33	s	IC MB7114LPF
IC34	8-759-507-85	s	IC MS62256CLL-10FC
IC35	8-759-038-46	s	IC SC7S00F
IC36	8-759-035-90	s	IC SC7S02F
IC37	8-759-038-46	s	IC SC7S00F
IC38	8-759-938-68	s	IC CXD1095Q
IC39	8-759-078-75	s	IC UPD6453GT-610
IC40	8-759-078-75	s	IC UPD6453GT-610
IC41	8-759-234-20	s	IC TC7S08F
IC42	8-759-234-20	s	IC TC7S08F
IC43	8-759-059-50	s	IC MB88351PFV
IC44	8-759-035-93	s	IC TC7S32F
IC45	8-759-035-90	s	IC SC7S02F
IC46	8-759-038-46	s	IC SC7S00F
IC47	8-759-038-46	s	IC SC7S00F
IC48	8-759-234-13	s	IC TC4S30F
IC49	8-759-242-64	s	IC TC4W53F
IC50	8-759-242-64	s	IC TC4W53F
IC52	8-759-038-46	s	IC SC7S00F
IC53	8-759-035-93	s	IC TC7S32F
IC54	8-759-038-46	s	IC SC7S00F
IC55	8-759-234-20	s	IC TC7S08F
IC56	8-759-031-84	s	IC SC7S04F
IC57	8-759-031-84	s	IC SC7S04F
L1	1-408-785-21	s	INDUCTOR, CHIP 47uH
L2	1-414-212-21	s	INDUCTOR, VAR 47uH
L3	1-408-785-21	s	INDUCTOR, CHIP 47uH
L4	1-408-785-21	s	INDUCTOR, CHIP 47uH
Q2	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q3	8-729-216-22	s	TRANSISTOR 2SA1162
Q4	8-729-901-06	s	TRANSISTOR DTA144EK
Q5	8-729-402-19	s	TRANSISTOR XN6501
Q6	8-729-901-06	s	TRANSISTOR DTA144EK
Q7	8-729-900-53	s	TRANSISTOR DTC114EK
Q8	8-729-900-53	s	TRANSISTOR DTC114EK
Q9	8-729-900-53	s	TRANSISTOR DTC114EK
Q10	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q11	8-729-122-63	s	TRANSISTOR 2SA1226
Q13	8-729-901-01	s	TRANSISTOR DTC144EK
Q14	8-729-901-01	s	TRANSISTOR DTC144EK
Q16	8-729-122-63	s	TRANSISTOR 2SA1226
Q17	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q18	8-729-122-63	s	TRANSISTOR 2SA1226
Q19	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q20	8-729-900-53	s	TRANSISTOR DTC114EK
Q21	8-729-216-22	s	TRANSISTOR 2SA1162
Q22	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q23	8-729-900-53	s	TRANSISTOR DTC114EK
R1	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R2	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

(AT-77 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R3	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R4	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R5	1-218-740-11	s	METAL 100K 0.50% 1/16W
R6	1-218-729-11	s	METAL 36K 0.50% 1/16W
R7	1-218-740-11	s	METAL 100K 0.50% 1/16W
R8	1-218-739-11	s	METAL 91K 0.50% 1/16W
R9	1-218-716-11	s	METAL 10K 0.50% 1/16W
R13	1-218-716-11	s	METAL 10K 0.50% 1/16W
R14	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R15	1-218-296-11	s	METAL, CHIP 75K 5% 1/16W
R18	1-218-668-11	s	METAL 100 0.50% 1/16W
R19	1-218-668-11	s	METAL 100 0.50% 1/16W
R20	1-218-668-11	s	METAL 100 0.50% 1/16W
R24	1-218-716-11	s	METAL 10K 0.50% 1/16W
R28	1-218-740-11	s	METAL 100K 0.50% 1/16W
R29	1-218-727-11	s	METAL 30K 0.50% 1/16W
R30	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R31	1-218-740-11	s	METAL 100K 0.50% 1/16W
R32	1-216-854-11	s	METAL, CHIP 560K 5% 1/16W
R33	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R39	1-218-752-11	s	METAL 330K 0.50% 1/16W
R40	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R41	1-218-716-11	s	METAL 10K 0.50% 1/16W
R42	1-218-716-11	s	METAL 10K 0.50% 1/16W
R43	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R44	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R45	1-218-668-11	s	METAL 100 0.50% 1/16W
R46	1-218-668-11	s	METAL 100 0.50% 1/16W
R47	1-218-740-11	s	METAL 100K 0.50% 1/16W
R48	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R49	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R50	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R51	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R52	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R53	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R54	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R55	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R56	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R57	1-218-716-11	s	METAL 10K 0.50% 1/16W
R58	1-218-716-11	s	METAL 10K 0.50% 1/16W
R59	1-218-727-11	s	METAL 30K 0.50% 1/16W
R60	1-218-734-11	s	METAL 56K 0.50% 1/16W
R61	1-218-716-11	s	METAL 10K 0.50% 1/16W
R62	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R63	1-218-752-11	s	METAL 330K 0.50% 1/16W
R64	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R65	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R66	1-218-716-11	s	METAL 10K 0.50% 1/16W
R67	1-218-716-11	s	METAL 10K 0.50% 1/16W
R68	1-218-727-11	s	METAL 30K 0.50% 1/16W
R69	1-218-734-11	s	METAL 56K 0.50% 1/16W
R70	1-218-716-11	s	METAL 10K 0.50% 1/16W
R71	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R72	1-218-752-11	s	METAL 330K 0.50% 1/16W
R73	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R74	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R75	1-218-716-11	s	METAL 10K 0.50% 1/16W
R76	1-218-716-11	s	METAL 10K 0.50% 1/16W
R77	1-218-727-11	s	METAL 30K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(AT-77 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R78	1-218-734-11	s	METAL 56K 0.50% 1/16W
R79	1-218-716-11	s	METAL 10K 0.50% 1/16W
R80	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R81	1-218-752-11	s	METAL 330K 0.50% 1/16W
R82	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R83	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R84	1-218-740-11	s	METAL 100K 0.50% 1/16W
R85	1-218-740-11	s	METAL 100K 0.50% 1/16W
R86	1-218-740-11	s	METAL 100K 0.50% 1/16W
R87	1-218-740-11	s	METAL 100K 0.50% 1/16W
R88	1-218-668-11	s	METAL 100 0.50% 1/16W
R89	1-218-668-11	s	METAL 100 0.50% 1/16W
R90	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R91	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R92	1-218-716-11	s	METAL 10K 0.50% 1/16W
R93	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R94	1-218-716-11	s	METAL 10K 0.50% 1/16W
R95	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R96	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R98	1-218-736-11	s	METAL 68K 0.50% 1/16W
R99	1-218-345-11	s	METAL 9.1K 0.50% 1/16W
R100	1-218-716-11	s	METAL 10K 0.50% 1/16W
R101	1-218-883-11	s	METAL 33K 0.50% 1/16W
R102	1-218-883-11	s	METAL 33K 0.50% 1/16W
R103	1-218-883-11	s	METAL 33K 0.50% 1/16W
R110	1-218-740-11	s	METAL 100K 0.50% 1/16W
R111	1-218-740-11	s	METAL 100K 0.50% 1/16W
R112	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R113	1-218-883-11	s	METAL 33K 0.50% 1/16W
R114	1-218-668-11	s	METAL 100 0.50% 1/16W
R117	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R118	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R119	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R120	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R121	1-218-668-11	s	METAL 100 0.50% 1/16W
R122	1-218-668-11	s	METAL 100 0.50% 1/16W
R123	1-218-668-11	s	METAL 100 0.50% 1/16W
R124	1-218-668-11	s	METAL 100 0.50% 1/16W
R125	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R126	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R128	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R129	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R130	1-218-740-11	s	METAL 100K 0.50% 1/16W
R131	1-218-740-11	s	METAL 100K 0.50% 1/16W
R132	1-218-740-11	s	METAL 100K 0.50% 1/16W
R133	1-218-740-11	s	METAL 100K 0.50% 1/16W
R134	1-218-740-11	s	METAL 100K 0.50% 1/16W
R135	1-218-740-11	s	METAL 100K 0.50% 1/16W
R136	1-218-740-11	s	METAL 100K 0.50% 1/16W
R137	1-218-740-11	s	METAL 100K 0.50% 1/16W
R138	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R161	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R163	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R164	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R165	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R166	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R167	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R168	1-218-271-11	s	METAL 2K 0.50% 1/16W
R169	1-218-700-11	s	METAL 2.2K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(AT-77 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R178	1-218-740-11	s	METAL 100K 0.50% 1/16W
R179	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R180	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R183	1-218-740-11	s	METAL 100K 0.50% 1/16W
R185	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R188	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R189	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R194	1-218-668-11	s	METAL 100 0.50% 1/16W
R195	1-218-740-11	s	METAL 100K 0.50% 1/16W
R196	1-218-716-11	s	METAL 10K 0.50% 1/16W
R197	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R198	1-218-740-11	s	METAL 100K 0.50% 1/16W
R199	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R201	1-218-668-11	s	METAL 100 0.50% 1/16W
R202	1-218-716-11	s	METAL 10K 0.50% 1/16W
R203	1-218-675-11	s	METAL 200 0.50% 1/16W
R206	1-218-740-11	s	METAL 100K 0.50% 1/16W
R207	1-218-675-11	s	METAL 200 0.50% 1/16W
R208	1-218-724-11	s	METAL 22K 0.50% 1/16W
R209	1-218-724-11	s	METAL 22K 0.50% 1/16W
R210	1-218-716-11	s	METAL 10K 0.50% 1/16W
R211	1-218-716-11	s	METAL 10K 0.50% 1/16W
R212	1-218-668-11	s	METAL 100 0.50% 1/16W
R213	1-218-716-11	s	METAL 10K 0.50% 1/16W
R214	1-218-716-11	s	METAL 10K 0.50% 1/16W
R215	1-218-716-11	s	METAL 10K 0.50% 1/16W
R216	1-218-740-11	s	METAL 100K 0.50% 1/16W
R217	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R218	1-218-716-11	s	METAL 10K 0.50% 1/16W
R219	1-218-740-11	s	METAL 100K 0.50% 1/16W
R221	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R222	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R223	1-218-776-11	s	METAL, CHIP 1M 0.50% 1/10W
R225	1-218-764-11	s	METAL, CHIP 330K 0.50% 1/10W
R226	1-215-436-00	s	METAL 4.3K 1% 1/6W
RV1	1-237-035-11	s	RES, ADJ, METAL 5K
S1	1-692-270-21	s	SWITCH, SLIDE
X1	1-579-714-11	s	OSCILLATOR, CRYSTAL 20MHz

CN-776 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-426-A	o	MOUNTED CIRCUIT BOARD, CN-776
CN402	1-565-136-11	o	PIN, CONNECTOR (STRAIGHT) 3P
CN403	1-568-361-11	s	CONNECTOR, BOARD TO BOARD 24P
CN404	1-568-361-11	s	CONNECTOR, BOARD TO BOARD 24P
CN405	1-580-533-11	s	PIN, CONNECTOR (PC BOARD) 8P

CN-777 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-564-832-11	o	CONTACT
1pc	1-580-581-11	o	HOUSING, 10P
1pc	1-580-599-11	o	CONTACT, FEMALE AWG26-30
1pc	1-643-937-11	o	PRINTED CIRCUIT BOARD, CN-777
1pc	3-742-205-02	o	BRACKET, CN
2pcs	7-627-553-47	s	SCREW,PRECISION +P 2X4
1pc	3-177-365-01	o	SHEET (CN), INSULATING
C1	1-135-160-21	s	TANTALUM, CHIP 15uF 10% 16V
CN11	1-580-564-11	o	PIN, CONNECTOR (PC BOARD) 18P
CN13	1-580-534-11	o	PIN, CONNECTOR (PC BOARD) 10P
CN14	1-565-151-11	o	CONNECTOR, 4P, MALE
L1	1-408-127-41	s	INDUCTOR 68uH

DR-201 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-611-A	o	MOUNTED CIRCUIT BOARD, DR-201
C1	1-126-336-11	s	ELECT 220uF 20% 25V
C2	1-127-515-11	s	ELECTSOLID 20 10V
C3	1-126-935-11	s	ELECT 470uF 20% 16V
C4	1-126-936-11	s	ELECT 3300uF 20% 16V
C6	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C8	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C11	1-126-948-11	s	ELECT 100uF 20% 35V
C13	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C15	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C18	1-135-136-21	s	TANTALUM, CHIP 6.8uF 10% 35V
C19	1-135-213-21	s	TANTAL 3.3uF 20% 25V
C20	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C21	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C22	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C24	1-135-212-21	s	TANTAL 2.2uF 10% 35V
C25	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C28	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C29	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C32	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
CN1	1-568-361-11	s	CONNECTOR, BOARD TO BOARD 24P
CN2	1-568-361-11	s	CONNECTOR, BOARD TO BOARD 24P
CN3	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN4	1-580-537-11	o	PIN, CONNECTOR (PC BOARD) 16P
CN5	1-695-441-21	o	PIN, CONNECTOR (PC BOARD) 7P
CN6	1-573-310-11	s	CONNECTOR, BOARD TO BOARD 20P
CN7	1-695-442-21	o	PIN, CONNECTOR (PC BOARD) 10P
D3	8-719-800-76	s	DIODE 1SS226
D4	8-719-800-76	s	DIODE 1SS226
D6	8-719-800-76	s	DIODE 1SS226
D7	8-719-400-18	s	DIODE MA152WK
D8	8-719-800-76	s	DIODE 1SS226
D9	8-719-974-76	s	DIODE HSM107S
D10	8-719-400-18	s	DIODE MA152WK
IC1	8-759-234-20	s	IC TC7S08F
IC2	8-759-243-06	s	IC TC74AC04F
IC3	8-759-979-69	s	IC TSC426C0A
IC4	8-759-929-21	s	IC TLC27L2CPS
IC5	8-759-234-77	s	IC TC4S66F
IC6	8-759-234-77	s	IC TC4S66F
IC8	8-752-351-17	s	IC CXD1262J
IC9	8-752-351-17	s	IC CXD1262J
IC10	8-752-351-17	s	IC CXD1262J
IC12	8-759-990-61	s	IC PCF8574T
JR1	1-216-295-00	s	METAL, CHIP 0-OHM
Q1	8-729-122-63	s	TRANSISTOR 2SA1226
Q2	8-729-421-71	s	TRANSISTOR 2SK620
Q5	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q6	8-729-402-19	s	TRANSISTOR XN6501
Q7	8-729-402-19	s	TRANSISTOR XN6501
Q8	8-729-402-19	s	TRANSISTOR XN6501
R20	1-216-607-11	s	METAL, CHIP 15 0.50% 1/10W
R21	1-216-607-11	s	METAL, CHIP 15 0.50% 1/10W
R29	1-218-776-11	s	METAL, CHIP 1M 0.50% 1/10W
R32	1-218-759-11	s	METAL, CHIP 200K 0.50% 1/10W
R34	1-218-762-11	s	METAL, CHIP 270K 0.50% 1/10W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(DR-201 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R38	1-218-762-11	s	METAL, CHIP 270K 0.50% 1/10W
R41	1-218-762-11	s	METAL, CHIP 270K 0.50% 1/10W
R76	1-216-295-00	s	METAL, CHIP 0-OHM
R77	1-216-295-00	s	METAL, CHIP 0-OHM
R78	1-216-295-00	s	METAL, CHIP 0-OHM
R79	1-216-295-00	s	METAL, CHIP 0-OHM
R80	1-216-295-00	s	METAL, CHIP 0-OHM
R81	1-216-295-00	s	METAL, CHIP 0-OHM
R82	1-216-295-00	s	METAL, CHIP 0-OHM
R83	1-216-295-00	s	METAL, CHIP 0-OHM
R84	1-216-295-00	s	METAL, CHIP 0-OHM
R85	1-216-295-00	s	METAL, CHIP 0-OHM
R86	1-216-295-00	s	METAL, CHIP 0-OHM
R87	1-216-295-00	s	METAL, CHIP 0-OHM
R88	1-216-295-00	s	METAL, CHIP 0-OHM
R89	1-216-295-00	s	METAL, CHIP 0-OHM
R90	1-216-295-00	s	METAL, CHIP 0-OHM
R91	1-216-295-00	s	METAL, CHIP 0-OHM
R92	1-216-295-00	s	METAL, CHIP 0-OHM
R93	1-216-295-00	s	METAL, CHIP 0-OHM
R94	1-216-295-00	s	METAL, CHIP 0-OHM
R95	1-216-295-00	s	METAL, CHIP 0-OHM
R96	1-216-295-00	s	METAL, CHIP 0-OHM
R97	1-216-295-00	s	METAL, CHIP 0-OHM
R98	1-216-295-00	s	METAL, CHIP 0-OHM
R99	1-216-295-00	s	METAL, CHIP 0-OHM
R100	1-216-295-00	s	METAL, CHIP 0-OHM
R103	1-249-387-11	s	CARBON 3.3 5% 1/4W
R104	1-216-304-11	s	METAL 3.3 5% 1/10W
R105	1-216-295-00	s	METAL, CHIP 0-OHM
R107	1-216-295-00	s	METAL, CHIP 0-OHM
R108	1-216-295-00	s	METAL, CHIP 0-OHM
RV1	1-237-037-11	s	RES, ADJ, METAL 20K
RV2	1-237-037-11	s	RES, ADJ, METAL 20K
RV3	1-237-037-11	s	RES, ADJ, METAL 20K

EN-107P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-632-A	o	MOUNTED CIRCUIT BOARD, EN-107P
2pcs	3-175-429-01	s	KNOB, PULL OUT
4pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
2pcs	7-688-001-12	s	W 2, MIDDLE
C2	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C3	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C4	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C5	1-162-974-11	s	CERAMIC 0.01uF 50V
C6	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C7	1-162-974-11	s	CERAMIC 0.01uF 50V
C9	1-162-974-11	s	CERAMIC 0.01uF 50V
C10	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C11	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C12	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C13	1-162-974-11	s	CERAMIC 0.01uF 50V
C14	1-162-974-11	s	CERAMIC 0.01uF 50V
C15	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C16	1-162-974-11	s	CERAMIC 0.01uF 50V
C17	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C18	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C19	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C20	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C21	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C22	1-162-974-11	s	CERAMIC 0.01uF 50V
C23	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C24	1-162-974-11	s	CERAMIC 0.01uF 50V
C25	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C26	1-162-974-11	s	CERAMIC 0.01uF 50V
C27	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C28	1-162-974-11	s	CERAMIC 0.01uF 50V
C29	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C30	1-162-974-11	s	CERAMIC 0.01uF 50V
C31	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C32	1-162-974-11	s	CERAMIC 0.01uF 50V
C33	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C34	1-162-974-11	s	CERAMIC 0.01uF 50V
C35	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C37	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C38	1-162-974-11	s	CERAMIC 0.01uF 50V
C39	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C40	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C46	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C47	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C49	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C50	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C51	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C52	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C53	1-164-357-11	s	CERAMIC 0.001uF 2% 50V
C57	1-162-974-11	s	CERAMIC 0.01uF 50V
C58	1-162-974-11	s	CERAMIC 0.01uF 50V
C60	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C61	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C62	1-162-974-11	s	CERAMIC 0.01uF 50V
C63	1-162-974-11	s	CERAMIC 0.01uF 50V
C64	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C65	1-162-974-11	s	CERAMIC 0.01uF 50V
C66	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C67	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C68	1-162-974-11	s	CERAMIC 0.01uF 50V

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(EN-107P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C69	1-162-974-11	s	CERAMIC 0.01uF 50V
C70	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C71	1-162-974-11	s	CERAMIC 0.01uF 50V
C72	1-162-974-11	s	CERAMIC 0.01uF 50V
C73	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C74	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C75	1-135-145-11	s	TANTALUM, CHIP 0.47uF 10% 35V
C76	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C77	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C78	1-135-145-11	s	TANTALUM, CHIP 0.47uF 10% 35V
C79	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C80	1-162-974-11	s	CERAMIC 0.01uF 50V
C81	1-162-974-11	s	CERAMIC 0.01uF 50V
C82	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C83	1-162-974-11	s	CERAMIC 0.01uF 50V
C84	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C85	1-162-974-11	s	CERAMIC 0.01uF 50V
C88	1-162-974-11	s	CERAMIC 0.01uF 50V
C90	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C91	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C92	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C93	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C94	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C95	1-162-974-11	s	CERAMIC 0.01uF 50V
C96	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C97	1-162-974-11	s	CERAMIC 0.01uF 50V
C98	1-162-974-11	s	CERAMIC 0.01uF 50V
C99	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C100	1-164-816-11	s	CERAMIC 220PF 2% 50V
C101	1-135-180-21	s	TANTAL 3.3uF 20% 6.3V
C102	1-162-974-11	s	CERAMIC 0.01uF 50V
C103	1-162-974-11	s	CERAMIC 0.01uF 50V
C104	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C105	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C106	1-162-974-11	s	CERAMIC 0.01uF 50V
C107	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C108	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C109	1-162-974-11	s	CERAMIC 0.01uF 50V
C110	1-135-217-21	s	TANTAL 15uF 10% 6.3V
C111	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C112	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C113	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C114	1-164-237-11	s	CERAMIC 16PF 5% 50V
C115	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C116	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C117	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C118	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C119	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C120	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C121	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C122	1-162-974-11	s	CERAMIC 0.01uF 50V
C123	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C124	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C125	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C127	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C128	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C129	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C130	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C131	1-162-974-11	s	CERAMIC 0.01uF 50V

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(EN-107P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C132	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C133	1-162-974-11	s	CERAMIC 0.01uF 50V
C134	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C135	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C136	1-162-974-11	s	CERAMIC 0.01uF 50V
C137	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C138	1-162-974-11	s	CERAMIC 0.01uF 50V
C139	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C141	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C142	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C143	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C144	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C145	1-164-357-11	s	CERAMIC 0.001uF 2% 50V
C146	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C147	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C148	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C149	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C151	1-124-286-00	s	ELECT 33uF 20% 10V
C152	1-124-286-00	s	ELECT 33uF 20% 10V
C154	1-162-926-11	s	CERAMIC, CHIP 82PF 5% 50V
C155	1-162-926-11	s	CERAMIC, CHIP 82PF 5% 50V
C156	1-162-926-11	s	CERAMIC, CHIP 82PF 5% 50V
C190	1-126-916-11	s	ELECT 1000uF 20% 6.3V
C191	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C200	1-126-925-11	s	ELECT 470uF 20% 10V
C202	1-126-925-11	s	ELECT 470uF 20% 10V
C210	1-164-218-11	s	CERAMIC 180PF 5% 50V
C211	1-162-926-11	s	CERAMIC, CHIP 82PF 5% 50V
C212	1-164-217-11	s	CERAMIC 150PF 5% 50V
C213	1-164-217-11	s	CERAMIC 150PF 5% 50V
C214	1-164-218-11	s	CERAMIC 180PF 5% 50V
C215	1-162-926-11	s	CERAMIC, CHIP 82PF 5% 50V
C216	1-135-217-21	s	TANTAL 15uF 10% 6.3V
C217	1-135-217-21	s	TANTAL 15uF 10% 6.3V
C220	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C221	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C222	1-162-925-11	s	CERAMIC, CHIP 68PF 5% 50V
C223	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C224	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C225	1-131-370-00	s	TANTALUM 6.8uF 10% 16V
CN1	1-566-960-11	o	CONNECTOR, 50P, MALE
CV1	1-141-356-11	s	CAP, VAR TRIMMER
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-800-76	s	DIODE 1SS226
D4	8-719-948-47	s	DIODE HSM88AS
D6	8-719-948-47	s	DIODE HSM88AS
D7	8-719-119-77	s	DIODE RD3.0ESL
D8	8-719-800-76	s	DIODE 1SS226
D9	8-719-800-76	s	DIODE 1SS226
D11	8-719-800-76	s	DIODE 1SS226
D12	8-719-800-76	s	DIODE 1SS226
D14	8-719-120-63	s	DIODE RD5.6ESL
D23	8-719-800-76	s	DIODE 1SS226
D30	8-719-948-47	s	DIODE HSM88AS
DL1	1-402-644-11	s	DELAY LINE
FL1	1-239-375-11	s	FILTER, LOW-PASS

(EN-107P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
FL2	1-239-382-22	s	FILTER, LOW-PASS (U/V)
FL3	1-239-382-22	s	FILTER, LOW-PASS (U/V)
FL4	1-239-380-11	s	FILTER, BANDPASS
FL5	1-402-646-11	s	DELAY LINE (90°) (PAL)
FL6	1-239-381-11	s	FILTER (PAL SYNC), LOW-PASS
IC1	8-759-011-65	s	IC MC74HC4053F
IC2	8-759-906-53	s	IC TL062CPS
IC3	8-759-009-10	s	IC MC14069UBF
IC4	8-759-100-93	s	IC UPC393G2
IC5	8-759-911-77	s	IC CX-7968A
IC7	8-759-925-74	s	IC SN74HC04ANS
IC8	8-759-906-59	s	IC CX22017
IC11	8-759-906-53	s	IC TL062CPS
IC12	8-759-242-64	s	IC TC4W53F
IC15	8-759-209-97	s	IC TC4S81F
L1	1-408-785-21	s	INDUCTOR, CHIP 47uH
Q1	8-729-403-32	s	TRANSISTOR XN6534
Q2	8-729-403-32	s	TRANSISTOR XN6534
Q3	8-729-403-32	s	TRANSISTOR XN6534
Q4	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q5	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q6	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q7	8-729-403-29	s	TRANSISTOR XN6435
Q8	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q9	8-729-122-63	s	TRANSISTOR 2SA1226
Q10	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q11	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q12	8-729-122-63	s	TRANSISTOR 2SA1226
Q13	8-729-109-44	s	TRANSISTOR 2SK94
Q17	8-729-403-32	s	TRANSISTOR XN6534
Q18	8-729-122-63	s	TRANSISTOR 2SA1226
Q19	8-729-122-63	s	TRANSISTOR 2SA1226
Q20	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q21	8-729-122-63	s	TRANSISTOR 2SA1226
Q22	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q23	8-729-216-22	s	TRANSISTOR 2SA1162
Q24	8-729-216-22	s	TRANSISTOR 2SA1162
Q25	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q26	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q27	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q34	8-729-403-32	s	TRANSISTOR XN6534
Q35	8-729-122-63	s	TRANSISTOR 2SA1226
Q36	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q37	8-729-216-22	s	TRANSISTOR 2SA1162
Q38	8-729-403-32	s	TRANSISTOR XN6534
Q39	8-729-122-63	s	TRANSISTOR 2SA1226
Q40	8-729-403-32	s	TRANSISTOR XN6534
Q41	8-729-122-63	s	TRANSISTOR 2SA1226
Q42	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q43	8-729-901-01	s	TRANSISTOR DTC144EK
Q45	8-729-403-29	s	TRANSISTOR XN6435
Q46	8-729-122-63	s	TRANSISTOR 2SA1226
Q48	8-729-122-63	s	TRANSISTOR 2SA1226
Q49	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q50	8-729-122-63	s	TRANSISTOR 2SA1226
Q51	8-729-216-22	s	TRANSISTOR 2SA1162
Q52	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q53	8-729-216-22	s	TRANSISTOR 2SA1162

(EN-107P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q54	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q55	8-729-216-22	s	TRANSISTOR 2SA1162
Q56	8-729-216-22	s	TRANSISTOR 2SA1162
Q57	8-729-403-29	s	TRANSISTOR XN6435
Q58	8-729-216-22	s	TRANSISTOR 2SA1162
Q62	8-729-122-63	s	TRANSISTOR 2SA1226
Q63	8-729-216-22	s	TRANSISTOR 2SA1162
Q64	8-729-403-29	s	TRANSISTOR XN6435
Q65	8-729-216-22	s	TRANSISTOR 2SA1162
Q66	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q67	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q68	8-729-122-63	s	TRANSISTOR 2SA1226
Q69	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q70	8-729-122-63	s	TRANSISTOR 2SA1226
Q71	8-729-122-63	s	TRANSISTOR 2SA1226
Q72	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q73	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q74	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q75	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q76	8-729-216-22	s	TRANSISTOR 2SA1162
Q77	8-729-403-29	s	TRANSISTOR XN6435
Q78	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q79	8-729-122-63	s	TRANSISTOR 2SA1226
Q80	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q81	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q82	8-729-122-63	s	TRANSISTOR 2SA1226
Q83	8-729-109-44	s	TRANSISTOR 2SK94
Q84	8-729-403-29	s	TRANSISTOR XN6435
Q85	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q86	8-729-122-63	s	TRANSISTOR 2SA1226
Q87	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q88	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q89	8-729-122-63	s	TRANSISTOR 2SA1226
Q90	8-729-403-29	s	TRANSISTOR XN6435
Q91	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q92	8-729-122-63	s	TRANSISTOR 2SA1226
Q93	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q94	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q95	8-729-122-63	s	TRANSISTOR 2SA1226
Q96	8-729-403-29	s	TRANSISTOR XN6435
Q97	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q98	8-729-122-63	s	TRANSISTOR 2SA1226
Q99	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q100	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q101	8-729-122-63	s	TRANSISTOR 2SA1226
Q102	8-729-216-22	s	TRANSISTOR 2SA1162
R1	1-218-748-11	s	METAL 220K 0.50% 1/16W
R2	1-218-660-11	s	METAL 47 0.50% 1/16W
R3	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R4	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R5	1-218-668-11	s	METAL 100 0.50% 1/16W
R6	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-218-660-11	s	METAL 47 0.50% 1/16W
R9	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R10	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R11	1-218-724-11	s	METAL 22K 0.50% 1/16W
R12	1-218-724-11	s	METAL 22K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(EN-107P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R13	1-218-724-11	s	METAL 22K 0.50% 1/16W
R14	1-218-668-11	s	METAL 100 0.50% 1/16W
R15	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R16	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R17	1-218-740-11	s	METAL 100K 0.50% 1/16W
R18	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R19	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R20	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R23	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R24	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R25	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R26	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R27	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R28	1-218-716-11	s	METAL 10K 0.50% 1/16W
R29	1-218-716-11	s	METAL 10K 0.50% 1/16W
R30	1-218-748-11	s	METAL 220K 0.50% 1/16W
R31	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R33	1-218-668-11	s	METAL 100 0.50% 1/16W
R35	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R36	1-218-668-11	s	METAL 100 0.50% 1/16W
R37	1-216-789-11	s	METAL, CHIP 2.2 5% 1/16W
R39	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R40	1-216-789-11	s	METAL, CHIP 2.2 5% 1/16W
R41	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R44	1-218-740-11	s	METAL 100K 0.50% 1/16W
R45	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R47	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R48	1-218-668-11	s	METAL 100 0.50% 1/16W
R49	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R50	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R51	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R52	1-218-724-11	s	METAL 22K 0.50% 1/16W
R53	1-218-296-11	s	METAL, CHIP 75K 5% 1/16W
R54	1-218-732-11	s	METAL 47K 0.50% 1/16W
R57	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R58	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R59	1-218-716-11	s	METAL 10K 0.50% 1/16W
R60	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R61	1-218-716-11	s	METAL 10K 0.50% 1/16W
R62	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R63	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R65	1-216-864-11	s	METAL, CHIP 0-OHM
R66	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R67	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R68	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R69	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R70	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R71	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R72	1-218-724-11	s	METAL 22K 0.50% 1/16W
R73	1-218-724-11	s	METAL 22K 0.50% 1/16W
R74	1-218-660-11	s	METAL 47 0.50% 1/16W
R75	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R76	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R77	1-218-716-11	s	METAL 10K 0.50% 1/16W
R78	1-218-716-11	s	METAL 10K 0.50% 1/16W
R79	1-218-668-11	s	METAL 100 0.50% 1/16W
R80	1-218-716-11	s	METAL 10K 0.50% 1/16W
R81	1-216-864-11	s	METAL, CHIP 0-OHM
R82	1-218-716-11	s	METAL 10K 0.50% 1/16W

(EN-107P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R83	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R84	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R85	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R86	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R88	1-218-727-11	s	METAL 30K 0.50% 1/16W
R90	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R91	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R92	1-218-271-11	s	METAL 2K 0.50% 1/16W
R93	1-218-727-11	s	METAL 30K 0.50% 1/16W
R95	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R96	1-218-668-11	s	METAL 100 0.50% 1/16W
R97	1-218-727-11	s	METAL 30K 0.50% 1/16W
R101	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R102	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R104	1-218-668-11	s	METAL 100 0.50% 1/16W
R106	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R107	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R108	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R110	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R111	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R113	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R114	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R115	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R117	1-218-660-11	s	METAL 47 0.50% 1/16W
R118	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R119	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R120	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R121	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R122	1-218-660-11	s	METAL 47 0.50% 1/16W
R123	1-218-660-11	s	METAL 47 0.50% 1/16W
R124	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R125	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R126	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R128	1-216-789-11	s	METAL, CHIP 2.2 5% 1/16W
R130	1-218-716-11	s	METAL 10K 0.50% 1/16W
R131	1-218-727-11	s	METAL 30K 0.50% 1/16W
R132	1-216-864-11	s	METAL, CHIP 0-OHM
R133	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R134	1-218-724-11	s	METAL 22K 0.50% 1/16W
R135	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R136	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R137	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R139	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R140	1-218-725-11	s	METAL 24K 0.50% 1/16W
R141	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R142	1-216-864-11	s	METAL, CHIP 0-OHM
R144	1-218-725-11	s	METAL 24K 0.50% 1/16W
R145	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R146	1-218-457-11	s	METAL 910 0.50% 1/16W
R147	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R148	1-218-660-11	s	METAL 47 0.50% 1/16W
R151	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R153	1-218-484-11	s	METAL 750 0.50% 1/16W
R154	1-218-484-11	s	METAL 750 0.50% 1/16W
R155	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R156	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R157	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R158	1-218-724-11	s	METAL 22K 0.50% 1/16W
R160	1-218-708-11	s	METAL 4.7K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(EN-107P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R161	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R162	1-216-864-11	s	METAL, CHIP 0-OHM
R165	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R167	1-218-732-11	s	METAL 47K 0.50% 1/16W
R168	1-218-668-11	s	METAL 100 0.50% 1/16W
R169	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R170	1-218-668-11	s	METAL 100 0.50% 1/16W
R171	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R172	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R173	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R174	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R175	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R176	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R177	1-218-707-11	s	METAL 4.3K 0.50% 1/16W
R178	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R179	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R181	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R182	1-218-660-11	s	METAL 47 0.50% 1/16W
R184	1-218-660-11	s	METAL 47 0.50% 1/16W
R186	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R187	1-218-716-11	s	METAL 10K 0.50% 1/16W
R188	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R193	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R194	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R195	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R196	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R197	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R198	1-218-668-11	s	METAL 100 0.50% 1/16W
R199	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R200	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R201	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R202	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R203	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R204	1-218-668-11	s	METAL 100 0.50% 1/16W
R205	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R206	1-216-864-11	s	METAL, CHIP 0-OHM
R207	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R208	1-218-716-11	s	METAL 10K 0.50% 1/16W
R209	1-218-740-11	s	METAL 100K 0.50% 1/16W
R210	1-218-724-11	s	METAL 22K 0.50% 1/16W
R211	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R212	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R213	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R214	1-218-707-11	s	METAL 4.3K 0.50% 1/16W
R215	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R216	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R217	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R218	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R219	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R220	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R221	1-218-664-11	s	METAL 68 0.50% 1/16W
R222	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R223	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R224	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R225	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R226	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R227	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R228	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R229	1-216-801-11	s	METAL, CHIP 22 5% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(EN-107P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R230	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R231	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R232	1-218-675-11	s	METAL 200 0.50% 1/16W
R235	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R236	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R237	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R238	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R239	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R240	1-218-660-11	s	METAL 47 0.50% 1/16W
R241	1-218-660-11	s	METAL 47 0.50% 1/16W
R242	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R243	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R244	1-218-270-11	s	METAL 1.1K 0.50% 1/16W
R245	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R246	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R248	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R250	1-218-271-11	s	METAL 2K 0.50% 1/16W
R251	1-218-271-11	s	METAL 2K 0.50% 1/16W
R252	1-218-740-11	s	METAL 100K 0.50% 1/16W
R253	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R254	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R255	1-218-716-11	s	METAL 10K 0.50% 1/16W
R256	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R257	1-218-716-11	s	METAL 10K 0.50% 1/16W
R258	1-218-740-11	s	METAL 100K 0.50% 1/16W
R259	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R260	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R261	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R262	1-218-724-11	s	METAL 22K 0.50% 1/16W
R263	1-218-725-11	s	METAL 24K 0.50% 1/16W
R264	1-218-734-11	s	METAL 56K 0.50% 1/16W
R265	1-218-724-11	s	METAL 22K 0.50% 1/16W
R266	1-216-861-11	s	METAL, CHIP 2.2M 5% 1/16W
R269	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R270	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R271	1-218-668-11	s	METAL 100 0.50% 1/16W
R272	1-218-750-11	s	METAL 270K 0.50% 1/16W
R273	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R274	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R281	1-218-675-11	s	METAL 200 0.50% 1/16W
RB1	1-239-024-11	s	MATRIX RESISTOR
RB3	1-239-026-11	s	MATRIX RESISTOR
RB4	1-239-025-11	s	MATRIX RESISTOR
RB5	1-239-025-11	s	MATRIX RESISTOR
RB6	1-239-026-11	s	MATRIX RESISTOR
RB7	1-239-024-11	s	MATRIX RESISTOR
RV1	1-237-033-11	s	RES, ADJ, METAL 1K
RV2	1-237-033-11	s	RES, ADJ, METAL 1K
RV5	1-237-036-11	s	RES, ADJ, METAL 10K
RV6	1-237-035-11	s	RES, ADJ, METAL 5K
RV8	1-237-033-11	s	RES, ADJ, METAL 1K
RV9	1-237-033-11	s	RES, ADJ, METAL 1K
RV10	1-237-033-11	s	RES, ADJ, METAL 1K
RV11	1-237-037-11	s	RES, ADJ, METAL 20K
RV12	1-237-034-11	s	RES, ADJ, METAL 2K
RV13	1-237-037-11	s	RES, ADJ, METAL 20K
RV14	1-237-037-11	s	RES, ADJ, METAL 20K
RV15	1-241-263-11	s	RES, ADJ, CERMET 5K

(EN-107P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV16	1-241-263-11	s	RES, ADJ, CERMET 5K
RV17	1-237-034-11	s	RES, ADJ, METAL 2K
RV18	1-237-033-11	s	RES, ADJ, METAL 1K
RV19	1-237-037-11	s	RES, ADJ, METAL 20K
RV20	1-237-037-11	s	RES, ADJ, METAL 20K
RV22	1-237-033-11	s	RES, ADJ, METAL 1K
RV23	1-237-033-11	s	RES, ADJ, METAL 1K
RV24	1-237-033-11	s	RES, ADJ, METAL 1K
RV25	1-237-032-11	s	RES, ADJ, METAL 500
RV26	1-237-032-11	s	RES, ADJ, METAL 500
RV27	1-237-035-11	s	RES, ADJ, METAL 5K
RV29	1-237-037-11	s	RES, ADJ, METAL 20K
S1	1-692-270-21	s	SWITCH, SLIDE
S4	1-570-857-11	s	SWITCH, SLIDE
S5	1-570-857-11	s	SWITCH, SLIDE
S6	1-570-857-11	s	SWITCH, SLIDE

EX-389 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-439-A	o	MOUNTED CIRCUIT BOARD, EX-389
43pcs	1-535-877-22	o	CHIP, CHECKER
1pc	1-566-960-11	o	CONNECTOR, 50P, MALE
1pc	1-566-961-11	o	CONNECTOR, 50P, FEMALE
4pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)

FL-145 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-430-A	s	MOUNTED CIRCUIT BOARD, FL-145
CN1	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN2	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P

FL-146 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-431-A	s	MOUNTED CIRCUIT BOARD, FL-146

FL-147 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-432-A	s	MOUNTED CIRCUIT BOARD, FL-147

FL-148 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-429-A	s	MOUNTED CIRCUIT BOARD, FL-148
CN1	1-568-336-11	s	CONNECTOR, BOARD TO BOARD 20P
CN2	1-568-336-11	s	CONNECTOR, BOARD TO BOARD 20P
CN3	1-568-336-11	s	CONNECTOR, BOARD TO BOARD 20P
CN4	1-568-336-11	s	CONNECTOR, BOARD TO BOARD 20P

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

IE-39P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-630-A	o	MOUNTED CIRCUIT BOARD, IE-39P
2pcs	3-175-429-01	s	KNOB, PULL OUT
4pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
2pcs	7-688-001-12	s	W 2, MIDDLE
C2	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C3	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C4	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C5	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C6	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C7	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C8	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C9	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C10	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C11	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C12	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C15	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C16	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C17	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C19	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C20	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C21	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C22	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C23	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C24	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C25	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C30	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C32	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C34	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C35	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C36	1-162-975-11	s	CERAMIC 24PF 5% 50V
C37	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C38	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C39	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C41	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C42	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C43	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C44	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C46	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C47	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C48	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C49	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C53	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C57	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C64	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C65	1-165-128-11	s	CERAMIC 0.22uF 16V
C66	1-164-156-11	s	CERAMIC 0.1uF 25V
C68	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C69	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C70	1-165-128-11	s	CERAMIC 0.22uF 16V
C71	1-165-128-11	s	CERAMIC 0.22uF 16V
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-165-128-11	s	CERAMIC 0.22uF 16V
C74	1-165-128-11	s	CERAMIC 0.22uF 16V
C75	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C77	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C79	1-165-128-11	s	CERAMIC 0.22uF 16V
C80	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C81	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C82	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C83	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C84	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C86	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C87	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C88	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C90	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C91	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C92	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C94	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C95	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C96	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C97	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C98	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C99	1-131-377-00	s	TANTALUM 10uF 10% 10V
C100	1-164-156-11	s	CERAMIC 0.1uF 25V
C101	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C102	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C103	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C104	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C105	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C106	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C107	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C108	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C109	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C110	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C111	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C112	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C113	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C114	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C115	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C116	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C117	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C118	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C119	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C120	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C121	1-164-357-11	s	CERAMIC 0.001uF 2% 50V
C122	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C124	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C125	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C126	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C127	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C128	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C129	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C130	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C132	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C134	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C135	1-164-156-11	s	CERAMIC 0.1uF 25V
C136	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C138	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C139	1-164-156-11	s	CERAMIC 0.1uF 25V
C140	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C141	1-126-395-11	s	ELECT, CHIP 22uF 20% 16V
C143	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C144	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C145	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C146	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C149	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C150	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C152	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C153	1-164-361-11	s	CERAMIC 0.047uF 16V5PF
C154	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C155	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C156	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C157	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C159	1-164-156-11	s	CERAMIC 0.1uF 25V
C160	1-164-361-11	s	CERAMIC 0.047uF 16V5PF
C161	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C162	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C163	1-164-156-11	s	CERAMIC 0.1uF 25V
C164	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C165	1-164-361-11	s	CERAMIC 0.047uF 16V5PF
C166	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C167	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C168	1-164-156-11	s	CERAMIC 0.1uF 25V
C169	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C170	1-126-394-11	s	ELECT, CHIP 10uF 20% 16V
C171	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C172	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C173	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C174	1-164-156-11	s	CERAMIC 0.1uF 25V
C175	1-164-156-11	s	CERAMIC 0.1uF 25V
C176	1-124-234-00	s	ELECT 22uF 20% 16V
C177	1-135-163-21	s	TANTAL 47uF 10% 4V
C180	1-131-388-00	s	TANTALUM 68uF 10% 6.3V
C181	1-131-388-00	s	TANTALUM 68uF 10% 6.3V
C183	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C184	1-131-388-00	s	TANTALUM 68uF 10% 6.3V
C185	1-131-388-00	s	TANTALUM 68uF 10% 6.3V
C186	1-131-381-00	s	TANTALUM 47uF 10% 10V
C194	1-102-947-00	s	CERAMIC 10PF 0.5PF 50V
C195	1-126-176-11	s	ELECT 220uF 20% 10V
CN1	1-566-960-11	o	CONNECTOR, 50P, MALE
CV1	1-141-424-11	s	CAP, ADJ
CV2	1-141-422-41	s	CAP, ADJ
CV3	1-141-422-41	s	CAP, ADJ
CV4	1-141-370-11	s	CAP, CHIP TRIMMER
D1	8-719-800-76	s	DIODE 1SS226
D3	8-719-800-76	s	DIODE 1SS226
D4	8-719-800-76	s	DIODE 1SS226
D5	8-719-800-76	s	DIODE 1SS226
D6	8-719-800-76	s	DIODE 1SS226
D7	8-719-800-76	s	DIODE 1SS226
D8	8-719-104-34	s	DIODE 1S2836
D9	8-719-974-76	s	DIODE HSM107S
D10	8-719-800-76	s	DIODE 1SS226
D11	8-719-800-76	s	DIODE 1SS226
D12	8-719-800-76	s	DIODE 1SS226
D13	8-719-800-76	s	DIODE 1SS226
D14	8-719-800-76	s	DIODE 1SS226
D15	8-719-104-34	s	DIODE 1S2836
D18	8-719-104-34	s	DIODE 1S2836
D19	8-719-104-34	s	DIODE 1S2836
D20	8-719-800-76	s	DIODE 1SS226
D30	8-719-800-76	s	DIODE 1SS226
D31	8-719-800-76	s	DIODE 1SS226
DL1	1-515-907-11	s	RELAY

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
DL2	1-415-490-21	s	DELAY LINE
DL3	1-415-490-21	s	DELAY LINE
DL4	1-415-490-21	s	DELAY LINE
DL5	1-415-689-11	s	DELAY LINE 120nS
DL6	1-415-408-11	s	DELAY LINE, DUAL 50nS, 100nS
DL7	1-415-502-11	s	DELAY LINE 100nS
FL1	1-236-520-11	s	LOW PASS
IC1	8-759-981-51	s	IC RC1496M
IC2	8-759-038-46	s	IC SC7S00F
IC3	8-759-906-53	s	IC TL062CPS
IC4	8-759-906-53	s	IC TL062CPS
IC5	8-759-981-51	s	IC RC1496M
IC6	8-759-234-77	s	IC TC4S66F
IC7	8-759-092-72	s	IC TL064CDB
IC8	8-759-710-79	s	IC NJM2107F
L1	1-408-777-00	s	INDUCTOR, CHIP 10uH
L2	1-408-777-00	s	INDUCTOR, CHIP 10uH
L3	1-408-777-00	s	INDUCTOR, CHIP 10uH
L6	1-410-377-31	s	INDUCTOR, CHIP 4.7uH
L7	1-410-377-31	s	INDUCTOR, CHIP 4.7uH
L10	1-410-717-31	s	INDUCTOR, CHIP 100uH
Q1	8-729-175-73	s	TRANSISTOR 2SC2757
Q12	8-729-403-32	s	TRANSISTOR XN6534
Q13	8-729-122-63	s	TRANSISTOR 2SA1226
Q14	8-729-175-73	s	TRANSISTOR 2SC2757
Q15	8-729-122-63	s	TRANSISTOR 2SA1226
Q16	8-729-175-73	s	TRANSISTOR 2SC2757
Q19	8-729-403-32	s	TRANSISTOR XN6534
Q20	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q22	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q34	8-729-403-32	s	TRANSISTOR XN6534
Q35	8-729-122-63	s	TRANSISTOR 2SA1226
Q36	8-729-122-63	s	TRANSISTOR 2SA1226
Q38	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q39	8-729-403-32	s	TRANSISTOR XN6534
Q40	8-729-122-63	s	TRANSISTOR 2SA1226
Q41	8-729-122-63	s	TRANSISTOR 2SA1226
Q42	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q43	8-729-175-73	s	TRANSISTOR 2SC2757
Q44	8-729-109-44	s	TRANSISTOR 2SK94
Q45	8-729-403-32	s	TRANSISTOR XN6534
Q46	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q47	8-729-122-63	s	TRANSISTOR 2SA1226
Q48	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q49	8-729-109-44	s	TRANSISTOR 2SK94
Q50	8-729-175-73	s	TRANSISTOR 2SC2757
Q51	8-729-403-32	s	TRANSISTOR XN6534
Q52	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q53	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q58	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q59	8-729-122-63	s	TRANSISTOR 2SA1226
Q60	8-729-122-63	s	TRANSISTOR 2SA1226
Q61	8-729-109-44	s	TRANSISTOR 2SK94
Q62	8-729-109-44	s	TRANSISTOR 2SK94
Q63	8-729-122-63	s	TRANSISTOR 2SA1226
Q64	8-729-109-44	s	TRANSISTOR 2SK94

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q65	8-729-109-44	s	TRANSISTOR 2SK94
Q66	8-729-122-63	s	TRANSISTOR 2SA1226
Q67	8-729-403-32	s	TRANSISTOR XN6534
Q68	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q69	8-729-403-32	s	TRANSISTOR XN6534
Q70	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q71	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q72	8-729-403-32	s	TRANSISTOR XN6534
Q73	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q74	8-729-403-32	s	TRANSISTOR XN6534
Q75	8-729-122-63	s	TRANSISTOR 2SA1226
Q76	8-729-122-63	s	TRANSISTOR 2SA1226
Q77	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q78	8-729-116-66	s	TRANSISTOR 2SK508-K53
Q79	8-729-122-63	s	TRANSISTOR 2SA1226
Q80	8-729-122-63	s	TRANSISTOR 2SA1226
Q81	8-729-122-63	s	TRANSISTOR 2SA1226
Q82	8-729-109-44	s	TRANSISTOR 2SK94
Q83	8-729-109-44	s	TRANSISTOR 2SK94
Q84	8-729-216-22	s	TRANSISTOR 2SA1162
Q85	8-729-216-22	s	TRANSISTOR 2SA1162
Q86	8-729-122-63	s	TRANSISTOR 2SA1226
Q87	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q88	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q89	8-729-403-32	s	TRANSISTOR XN6534
Q90	8-729-403-32	s	TRANSISTOR XN6534
Q91	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q92	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q93	8-729-122-63	s	TRANSISTOR 2SA1226
Q94	8-729-122-63	s	TRANSISTOR 2SA1226
Q95	8-729-122-63	s	TRANSISTOR 2SA1226
Q97	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q98	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q100	8-729-122-63	s	TRANSISTOR 2SA1226
Q101	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q102	8-729-122-63	s	TRANSISTOR 2SA1226
Q103	8-729-122-63	s	TRANSISTOR 2SA1226
Q104	8-729-122-63	s	TRANSISTOR 2SA1226
Q105	8-729-122-63	s	TRANSISTOR 2SA1226
Q106	8-729-122-63	s	TRANSISTOR 2SA1226
Q107	8-729-122-63	s	TRANSISTOR 2SA1226
Q108	8-729-175-73	s	TRANSISTOR 2SC2757
Q109	8-729-109-44	s	TRANSISTOR 2SK94
Q110	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q111	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q112	8-729-175-73	s	TRANSISTOR 2SC2757
Q113	8-729-122-63	s	TRANSISTOR 2SA1226
Q114	8-729-175-73	s	TRANSISTOR 2SC2757
Q115	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q116	8-729-122-63	s	TRANSISTOR 2SA1226
Q117	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q118	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q119	8-729-216-22	s	TRANSISTOR 2SA1162
Q120	8-729-216-22	s	TRANSISTOR 2SA1162
Q121	8-729-175-73	s	TRANSISTOR 2SC2757
Q122	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q123	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q130	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q131	8-729-122-63	s	TRANSISTOR 2SA1226

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q133	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
R1	1-218-660-11	s	METAL 47 0.50% 1/16W
R2	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R3	1-218-716-11	s	METAL 10K 0.50% 1/16W
R4	1-218-668-11	s	METAL 100 0.50% 1/16W
R5	1-218-688-11	s	METAL 680 0.50% 1/16W
R6	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R7	1-218-668-11	s	METAL 100 0.50% 1/16W
R8	1-218-744-11	s	METAL 150K 0.50% 1/16W
R9	1-218-668-11	s	METAL 100 0.50% 1/16W
R10	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R11	1-218-671-11	s	METAL 130 0.50% 1/16W
R12	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R13	1-218-660-11	s	METAL 47 0.50% 1/16W
R32	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R33	1-218-695-11	s	METAL 1.3K 0.50% 1/16W
R34	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R35	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R36	1-218-716-11	s	METAL 10K 0.50% 1/16W
R37	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R40	1-218-724-11	s	METAL 22K 0.50% 1/16W
R41	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R42	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R43	1-218-660-11	s	METAL 47 0.50% 1/16W
R44	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R45	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R46	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R50	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R51	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R52	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R53	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R54	1-218-457-11	s	METAL 910 0.50% 1/16W
R55	1-218-668-11	s	METAL 100 0.50% 1/16W
R56	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R78	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R79	1-218-695-11	s	METAL 1.3K 0.50% 1/16W
R80	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R81	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R83	1-218-740-11	s	METAL 100K 0.50% 1/16W
R84	1-218-724-11	s	METAL 22K 0.50% 1/16W
R86	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R88	1-218-736-11	s	METAL 68K 0.50% 1/16W
R89	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R90	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R91	1-218-660-11	s	METAL 47 0.50% 1/16W
R93	1-218-660-11	s	METAL 47 0.50% 1/16W
R94	1-218-732-11	s	METAL 47K 0.50% 1/16W
R95	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R96	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R97	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R98	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R99	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R100	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R101	1-216-864-11	s	METAL, CHIP 0-OHM
R102	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R103	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R104	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R105	1-218-708-11	s	METAL 4.7K 0.50% 1/16W

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R106	1-218-457-11	s	METAL 910 0.50% 1/16W
R107	1-218-668-11	s	METAL 100 0.50% 1/16W
R108	1-218-660-11	s	METAL 47 0.50% 1/16W
R109	1-218-732-11	s	METAL 47K 0.50% 1/16W
R110	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R111	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R112	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R113	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R114	1-218-668-11	s	METAL 100 0.50% 1/16W
R115	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R116	1-216-864-11	s	METAL, CHIP 0-OHM
R117	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R118	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R119	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R120	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R121	1-218-457-11	s	METAL 910 0.50% 1/16W
R122	1-218-668-11	s	METAL 100 0.50% 1/16W
R127	1-216-864-11	s	METAL, CHIP 0-OHM
R128	1-218-716-11	s	METAL 10K 0.50% 1/16W
R129	1-218-668-11	s	METAL 100 0.50% 1/16W
R131	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R132	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R133	1-218-672-11	s	METAL 150 0.50% 1/16W
R134	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R135	1-218-723-11	s	METAL 20K 0.50% 1/16W
R136	1-218-716-11	s	METAL 10K 0.50% 1/16W
R137	1-218-740-11	s	METAL 100K 0.50% 1/16W
R138	1-218-724-11	s	METAL 22K 0.50% 1/16W
R139	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R140	1-218-740-11	s	METAL 100K 0.50% 1/16W
R141	1-218-724-11	s	METAL 22K 0.50% 1/16W
R143	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R144	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R145	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R146	1-218-671-11	s	METAL 130 0.50% 1/16W
R147	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R148	1-218-671-11	s	METAL 130 0.50% 1/16W
R151	1-218-716-11	s	METAL 10K 0.50% 1/16W
R153	1-218-883-11	s	METAL 33K 0.50% 1/16W
R156	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R157	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R158	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R159	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R160	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R161	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R162	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R163	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R164	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R165	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R166	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R167	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R168	1-218-677-11	s	METAL 240 0.50% 1/16W
R169	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R170	1-218-271-11	s	METAL 2K 0.50% 1/16W
R171	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R172	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R173	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R174	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R175	1-218-708-11	s	METAL 4.7K 0.50% 1/16W

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R176	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R178	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R179	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R182	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R183	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R184	1-218-720-11	s	METAL 15K 0.50% 1/16W
R185	1-218-724-11	s	METAL 22K 0.50% 1/16W
R186	1-218-724-11	s	METAL 22K 0.50% 1/16W
R187	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R188	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R189	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R190	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R191	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R192	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R193	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R195	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R196	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R197	1-218-716-11	s	METAL 10K 0.50% 1/16W
R198	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R199	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R200	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R201	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R202	1-218-676-11	s	METAL 220 0.50% 1/16W
R203	1-218-676-11	s	METAL 220 0.50% 1/16W
R204	1-218-740-11	s	METAL 100K 0.50% 1/16W
R205	1-218-740-11	s	METAL 100K 0.50% 1/16W
R206	1-218-345-11	s	METAL 9.1K 0.50% 1/16W
R207	1-218-716-11	s	METAL 10K 0.50% 1/16W
R208	1-218-740-11	s	METAL 100K 0.50% 1/16W
R209	1-218-740-11	s	METAL 100K 0.50% 1/16W
R210	1-218-345-11	s	METAL 9.1K 0.50% 1/16W
R211	1-218-716-11	s	METAL 10K 0.50% 1/16W
R212	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R213	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R214	1-218-272-11	s	METAL 5.1K 0.50% 1/16W
R215	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R216	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R217	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R218	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R219	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R220	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R221	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R222	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R223	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R224	1-218-688-11	s	METAL 680 0.50% 1/16W
R225	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R226	1-216-864-11	s	METAL, CHIP 0-OHM
R227	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R228	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R229	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R230	1-218-271-11	s	METAL 2K 0.50% 1/16W
R231	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R232	1-218-680-11	s	METAL 330 0.50% 1/16W
R233	1-218-680-11	s	METAL 330 0.50% 1/16W
R234	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R235	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R236	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R237	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R238	1-216-812-11	s	METAL, CHIP 180 5% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R239	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R240	1-218-660-11	s	METAL 47 0.50% 1/16W
R241	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R244	1-218-740-11	s	METAL 100K 0.50% 1/16W
R247	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R248	1-218-695-11	s	METAL 1.3K 0.50% 1/16W
R250	1-218-672-11	s	METAL 150 0.50% 1/16W
R251	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R252	1-218-672-11	s	METAL 150 0.50% 1/16W
R255	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R256	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R257	1-218-668-11	s	METAL 100 0.50% 1/16W
R261	1-218-732-11	s	METAL 47K 0.50% 1/16W
R265	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R266	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R268	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R273	1-218-670-11	s	METAL 120 0.50% 1/16W
R282	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R283	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R283	1-218-457-11	s	METAL 910 0.50% 1/16W
R283	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R283	1-218-270-11	s	METAL 1.1K 0.50% 1/16W
R283	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R283	1-218-695-11	s	METAL 1.3K 0.50% 1/16W
R283	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R283	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R283	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R283	1-218-271-11	s	METAL 2K 0.50% 1/16W
R283	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R284	1-218-668-11	s	METAL 100 0.50% 1/16W
R285	1-218-668-11	s	METAL 100 0.50% 1/16W
R286	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R288	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R289	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R290	1-218-716-11	s	METAL 10K 0.50% 1/16W
R291	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R292	1-218-716-11	s	METAL 10K 0.50% 1/16W
R300	1-218-660-11	s	METAL 47 0.50% 1/16W
R301	1-218-668-11	s	METAL 100 0.50% 1/16W
R302	1-218-668-11	s	METAL 100 0.50% 1/16W
R303	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R304	1-218-732-11	s	METAL 47K 0.50% 1/16W
R336	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R337	1-216-864-11	s	METAL, CHIP 0-OHM
R338	1-218-668-11	s	METAL 100 0.50% 1/16W
R339	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R340	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R341	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R342	1-218-883-11	s	METAL 33K 0.50% 1/16W
R343	1-218-716-11	s	METAL 10K 0.50% 1/16W
R344	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R345	1-218-668-11	s	METAL 100 0.50% 1/16W
R346	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R347	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R348	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R349	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R350	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R351	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R352	1-216-820-11	s	METAL, CHIP 820 5% 1/16W

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R353	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R354	1-218-271-11	s	METAL 2K 0.50% 1/16W
R355	1-218-271-11	s	METAL 2K 0.50% 1/16W
R356	1-218-724-11	s	METAL 22K 0.50% 1/16W
R357	1-218-883-11	s	METAL 33K 0.50% 1/16W
R358	1-218-668-11	s	METAL 100 0.50% 1/16W
R359	1-218-883-11	s	METAL 33K 0.50% 1/16W
R360	1-218-716-11	s	METAL 10K 0.50% 1/16W
R361	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R362	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R363	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R364	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R365	1-218-668-11	s	METAL 100 0.50% 1/16W
R366	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R367	1-218-271-11	s	METAL 2K 0.50% 1/16W
R368	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R369	1-218-664-11	s	METAL 68 0.50% 1/16W
R370	1-218-688-11	s	METAL 680 0.50% 1/16W
R371	1-216-864-11	s	METAL, CHIP 0-OHM
R372	1-218-668-11	s	METAL 100 0.50% 1/16W
R373	1-218-668-11	s	METAL 100 0.50% 1/16W
R374	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R375	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R376	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R377	1-218-668-11	s	METAL 100 0.50% 1/16W
R378	1-218-271-11	s	METAL 2K 0.50% 1/16W
R379	1-218-668-11	s	METAL 100 0.50% 1/16W
R380	1-218-271-11	s	METAL 2K 0.50% 1/16W
R381	1-218-668-11	s	METAL 100 0.50% 1/16W
R382	1-218-271-11	s	METAL 2K 0.50% 1/16W
R383	1-218-716-11	s	METAL 10K 0.50% 1/16W
R384	1-218-716-11	s	METAL 10K 0.50% 1/16W
R385	1-218-716-11	s	METAL 10K 0.50% 1/16W
R386	1-218-883-11	s	METAL 33K 0.50% 1/16W
R387	1-218-716-11	s	METAL 10K 0.50% 1/16W
R388	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R389	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R390	1-218-677-11	s	METAL 240 0.50% 1/16W
R391	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R392	1-218-677-11	s	METAL 240 0.50% 1/16W
R392	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R393	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R394	1-216-864-11	s	METAL, CHIP 0-OHM
R395	1-218-748-11	s	METAL 220K 0.50% 1/16W
R396	1-218-748-11	s	METAL 220K 0.50% 1/16W
R397	1-218-668-11	s	METAL 100 0.50% 1/16W
R398	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R399	1-218-720-11	s	METAL 15K 0.50% 1/16W
R400	1-218-716-11	s	METAL 10K 0.50% 1/16W
R401	1-218-720-11	s	METAL 15K 0.50% 1/16W
R402	1-218-720-11	s	METAL 15K 0.50% 1/16W
R403	1-218-660-11	s	METAL 47 0.50% 1/16W
R404	1-218-668-11	s	METAL 100 0.50% 1/16W
R405	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R407	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R408	1-218-660-11	s	METAL 47 0.50% 1/16W
R409	1-218-688-11	s	METAL 680 0.50% 1/16W
R410	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R411	1-216-820-11	s	METAL, CHIP 820 5% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(IE-39P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R412	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R413	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R414	1-218-740-11	s	METAL 100K 0.50% 1/16W
R415	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R416	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R417	1-218-724-11	s	METAL 22K 0.50% 1/16W
R418	1-218-748-11	s	METAL 220K 0.50% 1/16W
R419	1-218-734-11	s	METAL 56K 0.50% 1/16W
R420	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R421	1-218-688-11	s	METAL 680 0.50% 1/16W
R426	1-215-440-00	s	METAL 6.2K 1% 1/6W
R428	1-215-395-00	s	METAL 82 1% 1/6W
RV1	1-237-032-11	s	RES, ADJ, METAL 500
RV2	1-237-031-11	s	RES, ADJ, METAL 200
RV4	1-237-031-11	s	RES, ADJ, METAL 200
RV5	1-237-031-11	s	RES, ADJ, METAL 200
RV6	1-237-037-11	s	RES, ADJ, METAL 20K
RV7	1-241-260-11	s	RES, ADJ, CERMET 500
RV8	1-237-032-11	s	RES, ADJ, METAL 500
RV9	1-237-031-11	s	RES, ADJ, METAL 200
RV10	1-237-033-11	s	RES, ADJ, METAL 1K
RV11	1-237-035-11	s	RES, ADJ, METAL 5K
RV12	1-241-262-11	s	RES, ADJ, CERMET 2K
RV13	1-237-034-11	s	RES, ADJ, METAL 2K
RV14	1-241-261-41	s	RES, ADJ, CERMET 1K
RV15	1-241-264-11	s	RES, ADJ, CERMET 10K
RV16	1-237-032-11	s	RES, ADJ, METAL 500
RV17	1-237-033-11	s	RES, ADJ, METAL 1K
RV18	1-237-035-11	s	RES, ADJ, METAL 5K
RV20	1-237-035-11	s	RES, ADJ, METAL 5K
RV21	1-237-033-11	s	RES, ADJ, METAL 1K
RV22	1-237-032-11	s	RES, ADJ, METAL 500
S1	1-570-610-11	s	SWITCH, TOGGLE
S2	1-570-857-11	s	SWITCH, SLIDE
S3	1-570-857-11	s	SWITCH, SLIDE

LP-67 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-565-123-11	o	HOUSING, 4P
1pc	1-565-163-11	o	TERMINAL, SOLDERLESS
1pc	1-566-987-11	o	CONTACT, AWG28-32
1pc	1-566-990-11	o	HOUSING, 4P
D1	8-719-026-39	s	DIODE CL-150UR-CD
D2	8-719-026-39	s	DIODE CL-150UR-CD
D3	8-719-987-43	s	DIODE CL-150PG-CD

LP-68 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-565-124-11	o	HOUSING, CONNECTOR 5P
1pc	1-565-163-11	o	TERMINAL, SOLDERLESS
1pc	1-566-987-11	o	CONTACT, AWG28-32
1pc	1-566-990-11	o	HOUSING, 4P
D1	8-719-026-16	s	DIODE CL-150D-CD
D2	8-719-026-39	s	DIODE CL-150UR-CD
D3	8-719-026-16	s	DIODE CL-150D-CD

LP-69 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-643-935-11	o	PRINTED CIRCUIT BOARD, LP-69
1pc	3-722-474-05	o	BRACKET, LP
2pcs	7-627-556-37	s	SCREW,PRECISION +P2.6X4 TYPE 1
CN1	1-565-149-11	o	PIN, CONNECTOR (ANGLE) 2P
D1	8-719-950-44	s	DIODE GL-5LR40,RED
D2	8-719-950-44	s	DIODE GL-5LR40,RED

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

MB-455 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-626-A	o	MOUNTED CIRCUIT BOARD, MB-455
1pc	3-179-651-01	o	SPACER (HN), CONNECTOR
1pc	7-627-554-28	s	SCREW, PRECISION +P 2X5 TYPE1
2pcs	7-627-553-68	s	SCREW,PRECISION +P 2X6
8pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
CN101	1-566-962-11	o	CONNECTOR, 50P, FEMALE
CN102	1-566-962-11	o	CONNECTOR, 50P, FEMALE
CN103	1-566-962-11	o	CONNECTOR, 50P, FEMALE
CN104	1-566-962-11	o	CONNECTOR, 50P, FEMALE
CN105	1-566-962-11	o	CONNECTOR, 50P, FEMALE
CN106	1-568-360-11	s	CONNECTOR, BOARD TO BOARD 22P
CN107	1-568-360-11	s	CONNECTOR, BOARD TO BOARD 22P
CN108	1-568-360-11	s	CONNECTOR, BOARD TO BOARD 22P
CN109	1-568-360-11	s	CONNECTOR, BOARD TO BOARD 22P
CN110	1-568-361-11	s	CONNECTOR, BOARD TO BOARD 24P
CN111	1-568-361-11	s	CONNECTOR, BOARD TO BOARD 24P
CN112	1-565-136-11	o	PIN, CONNECTOR (STRAIGHT) 3P
CN113	1-568-359-11	s	CONNECTOR, BOARD TO BOARD 20P
CN114	1-568-359-11	s	CONNECTOR, BOARD TO BOARD 20P
CN115	1-580-561-11	o	PIN, CONNECTOR (PC BOARD) 12P
CN116	1-580-536-11	s	PIN, CONNECTOR (PC BOARD) 14P
CN117	1-580-563-11	o	PIN, CONNECTOR (PC BOARD) 16P
CN118	1-580-562-11	o	PIN, CONNECTOR (PC BOARD) 14P
CN119	1-580-562-11	o	PIN, CONNECTOR (PC BOARD) 14P
CN120	1-565-160-11	o	PIN, CONNECTOR (ANGLE) 13P
CN121	1-580-559-11	o	PIN, CONNECTOR (PC BOARD) 8P
CN122	1-565-138-11	o	PIN, CONNECTOR (STRAIGHT) 5P
CN123	1-580-539-11	o	PIN, CONNECTOR (PC BOARD) 20P
CN124	1-580-561-11	o	PIN, CONNECTOR (PC BOARD) 12P

PA-156 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C1	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C3	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C7	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C9	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C11	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C13	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C14	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C16	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C18	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C19	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C20	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C24	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C26	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C38	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C39	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C40	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C41	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C42	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C43	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C51	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C53	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C58	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C59	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C65	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C66	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C68	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C69	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
CN1	1-580-535-11	o	PIN, CONNECTOR (PC BOARD) 12P
CN2	1-506-467-11	o	CONNECTOR, 2P, MALE
CN3	1-506-467-11	o	CONNECTOR, 2P, MALE
CN4	1-506-467-11	o	CONNECTOR, 2P, MALE
CN5	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN6	1-568-361-11	s	CONNECTOR, BOARD TO BOARD 24P
CN7	1-568-361-11	s	CONNECTOR, BOARD TO BOARD 24P
CV1	1-141-422-41	s	CAP, ADJ
CV2	1-141-423-61	s	CAP, ADJ
CV3	1-141-422-41	s	CAP, ADJ
D1	8-719-974-76	s	DIODE HSM107S
D2	8-719-974-76	s	DIODE HSM107S
IC1	8-759-929-21	s	IC TLC27L2CPS
IC2	8-759-061-88	s	IC MAX454CSD
IC3	8-759-234-20	s	IC TC7S08F
IC4	8-759-234-20	s	IC TC7S08F
IC5	8-759-979-73	s	IC TLC27L4CNS
IC6	8-759-234-20	s	IC TC7S08F
IC7	8-759-234-20	s	IC TC7S08F
IC8	8-759-035-93	s	IC TC7S32F
IC9	8-759-031-84	s	IC SC7S04F
IC10	8-759-234-20	s	IC TC7S08F
IC11	8-759-234-20	s	IC TC7S08F
IC12	8-759-929-21	s	IC TLC27L2CPS
IC13	8-759-242-76	s	IC TC7W08F
JR1	1-216-295-00	s	METAL, CHIP 0-OHM
Q1	8-729-122-63	s	TRANSISTOR 2SA1226
Q2	8-765-930-08	s	TRANSISTOR 3SK163-2

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(PA-156 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q3	8-729-802-80	s	TRANSISTOR 2SC3661
Q4	8-729-122-63	s	TRANSISTOR 2SA1226
Q5	8-765-930-08	s	TRANSISTOR 3SK163-2
Q6	8-729-802-80	s	TRANSISTOR 2SC3661
Q7	8-729-122-63	s	TRANSISTOR 2SA1226
Q8	8-765-930-08	s	TRANSISTOR 3SK163-2
Q9	8-729-802-80	s	TRANSISTOR 2SC3661
Q10	8-729-175-73	s	TRANSISTOR 2SC2757
Q11	8-729-402-19	s	TRANSISTOR XN6501
Q12	8-729-175-73	s	TRANSISTOR 2SC2757
Q13	8-729-403-32	s	TRANSISTOR XN6534
Q14	8-729-403-29	s	TRANSISTOR XN6435
Q16	8-729-403-32	s	TRANSISTOR XN6534
Q17	8-729-403-32	s	TRANSISTOR XN6534
Q18	8-729-122-63	s	TRANSISTOR 2SA1226
Q19	8-765-930-08	s	TRANSISTOR 3SK163-2
Q20	8-729-802-80	s	TRANSISTOR 2SC3661
Q21	8-729-122-63	s	TRANSISTOR 2SA1226
Q22	8-765-930-08	s	TRANSISTOR 3SK163-2
Q23	8-729-802-80	s	TRANSISTOR 2SC3661
Q24	8-729-122-63	s	TRANSISTOR 2SA1226
Q25	8-765-930-08	s	TRANSISTOR 3SK163-2
Q26	8-729-802-80	s	TRANSISTOR 2SC3661
Q27	8-729-175-73	s	TRANSISTOR 2SC2757
Q28	8-729-402-19	s	TRANSISTOR XN6501
Q29	8-729-175-73	s	TRANSISTOR 2SC2757
Q30	8-729-403-29	s	TRANSISTOR XN6435
Q31	8-729-403-32	s	TRANSISTOR XN6534
Q34	8-729-122-63	s	TRANSISTOR 2SA1226
Q35	8-765-930-08	s	TRANSISTOR 3SK163-2
Q36	8-729-802-80	s	TRANSISTOR 2SC3661
Q37	8-729-122-63	s	TRANSISTOR 2SA1226
Q38	8-765-930-08	s	TRANSISTOR 3SK163-2
Q39	8-729-802-80	s	TRANSISTOR 2SC3661
Q40	8-729-122-63	s	TRANSISTOR 2SA1226
Q41	8-765-930-08	s	TRANSISTOR 3SK163-2
Q42	8-729-802-80	s	TRANSISTOR 2SC3661
Q43	8-729-175-73	s	TRANSISTOR 2SC2757
Q44	8-729-402-19	s	TRANSISTOR XN6501
Q45	8-729-175-73	s	TRANSISTOR 2SC2757
Q46	8-729-403-32	s	TRANSISTOR XN6534
Q47	8-729-403-29	s	TRANSISTOR XN6435
Q48	8-729-122-63	s	TRANSISTOR 2SA1226
Q55	8-729-216-22	s	TRANSISTOR 2SA1162
Q58	8-729-122-63	s	TRANSISTOR 2SA1226
Q59	8-729-802-80	s	TRANSISTOR 2SC3661
Q61	8-729-122-63	s	TRANSISTOR 2SA1226
Q62	8-729-802-80	s	TRANSISTOR 2SC3661
Q63	8-729-122-63	s	TRANSISTOR 2SA1226
Q64	8-729-122-63	s	TRANSISTOR 2SA1226
Q65	8-765-930-08	s	TRANSISTOR 3SK163-2
Q66	8-765-930-08	s	TRANSISTOR 3SK163-2
Q67	8-729-802-80	s	TRANSISTOR 2SC3661
Q68	8-729-802-80	s	TRANSISTOR 2SC3661
Q70	8-729-122-63	s	TRANSISTOR 2SA1226
Q71	8-729-802-80	s	TRANSISTOR 2SC3661
Q73	8-729-216-22	s	TRANSISTOR 2SA1162
Q74	8-729-216-22	s	TRANSISTOR 2SA1162
Q75	8-729-216-22	s	TRANSISTOR 2SA1162

(PA-156 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R5	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R8	1-218-763-11	s	METAL 300K 0.50% 1/10W
R11	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R15	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R39	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R42	1-218-763-11	s	METAL 300K 0.50% 1/10W
R44	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R49	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R70	1-218-763-11	s	METAL 300K 0.50% 1/10W
R72	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R75	1-218-763-11	s	METAL 300K 0.50% 1/10W
R77	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R82	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R113	1-216-304-11	s	METAL 3.3 5% 1/10W
R114	1-216-304-11	s	METAL 3.3 5% 1/10W
R115	1-216-304-11	s	METAL 3.3 5% 1/10W
R119	1-216-295-00	s	METAL, CHIP 0-OHM
R139	1-218-763-11	s	METAL 300K 0.50% 1/10W
R142	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R144	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R161	1-218-763-11	s	METAL 300K 0.50% 1/10W
R164	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R166	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R169	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R172	1-218-763-11	s	METAL 300K 0.50% 1/10W
R173	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R190	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R192	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R200	1-216-295-00	s	METAL, CHIP 0-OHM
R209	1-216-295-00	s	METAL, CHIP 0-OHM
R215	1-216-304-11	s	METAL 3.3 5% 1/10W
R216	1-216-304-11	s	METAL 3.3 5% 1/10W
R217	1-216-304-11	s	METAL 3.3 5% 1/10W
R218	1-216-295-00	s	METAL, CHIP 0-OHM
R219	1-216-295-00	s	METAL, CHIP 0-OHM
RV1	1-237-033-11	s	RES, ADJ, METAL 1K
RV2	1-237-033-11	s	RES, ADJ, METAL 1K
RV3	1-237-033-11	s	RES, ADJ, METAL 1K
RV5	1-237-036-11	s	RES, ADJ, METAL 10K

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

PR-179 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-631-A	o	MOUNTED CIRCUIT BOARD, PR-179 (including PR-182 board)
2pcs	3-175-429-01	s	KNOB, PULL OUT
4pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
2pcs	7-688-001-12	s	W 2, MIDDLE
C2	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C3	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C4	1-164-361-11	s	CERAMIC 0.047uF 16V5PF
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C11	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C12	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C15	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-135-227-11	s	TANTAL 100uF 10% 6.3V
C23	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C24	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C25	1-164-361-11	s	CERAMIC 0.047uF 16V5PF
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-164-156-11	s	CERAMIC 0.1uF 25V
C29	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C32	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C33	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C34	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C35	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C36	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C41	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C45	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C46	1-164-361-11	s	CERAMIC 0.047uF 16V5PF
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-164-156-11	s	CERAMIC 0.1uF 25V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C53	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C54	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C55	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C57	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C66	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C67	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C69	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C70	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C72	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C73	1-164-156-11	s	CERAMIC 0.1uF 25V
C74	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C75	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C76	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C77	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C78	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C79	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C80	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C81	1-164-156-11	s	CERAMIC 0.1uF 25V
C82	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C83	1-164-156-11	s	CERAMIC 0.1uF 25V
C84	1-162-925-11	s	CERAMIC, CHIP 68PF 5% 50V
C85	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C93	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C94	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C95	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C98	1-135-073-00	s	TANTALUM, CHIP 0.33uF 10% 35V
C99	1-164-156-11	s	CERAMIC 0.1uF 25V
C102	1-162-930-11	s	CERAMIC 1PF 0.25PF 50V
C103	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C104	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C105	1-164-156-11	s	CERAMIC 0.1uF 25V
C106	1-135-125-21	s	TANTALUM, CHIP 33uF 20% 10V
C107	1-164-160-11	s	CERAMIC 20PF 5% 50V
C108	1-164-160-11	s	CERAMIC 20PF 5% 50V
C109	1-164-160-11	s	CERAMIC 20PF 5% 50V
C110	1-131-370-00	s	TANTALUM 6.8uF 10% 16V
C111	1-131-370-00	s	TANTALUM 6.8uF 10% 16V
C112	1-131-370-00	s	TANTALUM 6.8uF 10% 16V
C113	1-124-584-00	s	ELECT 100uF 20% 10V
CN1	1-566-960-11	o	CONNECTOR, 50P, MALE
CN3	1-568-331-11	s	CONNECTOR, BOARD TO BOARD 10P
CV1	1-141-331-11	s	CAP, VAR, TRIMMER (CHIP)
CV2	1-141-331-11	s	CAP, VAR, TRIMMER (CHIP)
CV3	1-141-331-11	s	CAP, VAR, TRIMMER (CHIP)
D1	8-719-400-18	s	DIODE MA152WK
D2	8-719-400-18	s	DIODE MA152WK
D3	8-719-948-47	s	DIODE HSM88AS
D4	8-719-800-76	s	DIODE 1SS226
D5	8-719-948-47	s	DIODE HSM88AS
D6	8-719-400-18	s	DIODE MA152WK
D7	8-719-400-18	s	DIODE MA152WK
D8	8-719-948-47	s	DIODE HSM88AS
D9	8-719-800-76	s	DIODE 1SS226
D10	8-719-948-47	s	DIODE HSM88AS
D11	8-719-400-18	s	DIODE MA152WK
D12	8-719-400-18	s	DIODE MA152WK
D13	8-719-948-47	s	DIODE HSM88AS
D14	8-719-800-76	s	DIODE 1SS226
D15	8-719-948-47	s	DIODE HSM88AS
D16	8-719-974-76	s	DIODE HSM107S
D19	8-719-800-76	s	DIODE 1SS226
D20	8-719-017-42	s	DIODE HSM88WA
D21	8-719-800-76	s	DIODE 1SS226
D22	8-719-800-76	s	DIODE 1SS226
D24	8-719-800-76	s	DIODE 1SS226
D26	8-719-800-76	s	DIODE 1SS226
D42	8-719-948-47	s	DIODE HSM88AS
D43	8-719-948-47	s	DIODE HSM88AS
D44	8-719-948-47	s	DIODE HSM88AS
D45	8-719-911-19	s	DIODE 1SS119
D46	8-719-911-19	s	DIODE 1SS119

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
DL1	1-415-449-11	s	DELAY LINE
IC1	8-759-906-53	s	IC TL062CPS
IC2	8-759-030-55	s	IC MC1496M
IC4	8-759-906-53	s	IC TL062CPS
IC5	8-759-030-55	s	IC MC1496M
IC7	8-759-906-53	s	IC TL062CPS
IC8	8-759-030-55	s	IC MC1496M
IC9	8-759-906-53	s	IC TL062CPS
IC11	8-759-906-53	s	IC TL062CPS
IC12	8-759-906-53	s	IC TL062CPS
IC13	8-759-906-53	s	IC TL062CPS
Q1	8-729-122-63	s	TRANSISTOR 2SA1226
Q2	8-729-403-32	s	TRANSISTOR XN6534
Q3	8-729-403-32	s	TRANSISTOR XN6534
Q4	8-729-403-32	s	TRANSISTOR XN6534
Q5	8-729-122-63	s	TRANSISTOR 2SA1226
Q6	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q7	8-729-109-44	s	TRANSISTOR 2SK94
Q8	8-729-122-63	s	TRANSISTOR 2SA1226
Q9	8-729-122-63	s	TRANSISTOR 2SA1226
Q10	8-729-122-63	s	TRANSISTOR 2SA1226
Q11	8-729-122-63	s	TRANSISTOR 2SA1226
Q12	8-729-122-63	s	TRANSISTOR 2SA1226
Q13	8-729-109-44	s	TRANSISTOR 2SK94
Q14	8-729-109-44	s	TRANSISTOR 2SK94
Q15	8-729-109-44	s	TRANSISTOR 2SK94
Q16	8-729-122-63	s	TRANSISTOR 2SA1226
Q17	8-729-403-32	s	TRANSISTOR XN6534
Q18	8-729-175-73	s	TRANSISTOR 2SC2757
Q19	8-729-109-44	s	TRANSISTOR 2SK94
Q20	8-729-122-63	s	TRANSISTOR 2SA1226
Q21	8-729-403-29	s	TRANSISTOR XN6435
Q22	8-729-403-29	s	TRANSISTOR XN6435
Q23	8-729-403-32	s	TRANSISTOR XN6534
Q24	8-729-403-29	s	TRANSISTOR XN6435
Q25	8-729-403-32	s	TRANSISTOR XN6534
Q26	8-729-122-63	s	TRANSISTOR 2SA1226
Q27	8-729-403-32	s	TRANSISTOR XN6534
Q28	8-729-403-32	s	TRANSISTOR XN6534
Q29	8-729-403-32	s	TRANSISTOR XN6534
Q30	8-729-122-63	s	TRANSISTOR 2SA1226
Q31	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q32	8-729-109-44	s	TRANSISTOR 2SK94
Q33	8-729-122-63	s	TRANSISTOR 2SA1226
Q34	8-729-122-63	s	TRANSISTOR 2SA1226
Q35	8-729-122-63	s	TRANSISTOR 2SA1226
Q36	8-729-122-63	s	TRANSISTOR 2SA1226
Q37	8-729-122-63	s	TRANSISTOR 2SA1226
Q38	8-729-109-44	s	TRANSISTOR 2SK94
Q39	8-729-109-44	s	TRANSISTOR 2SK94
Q40	8-729-109-44	s	TRANSISTOR 2SK94
Q41	8-729-122-63	s	TRANSISTOR 2SA1226
Q42	8-729-403-32	s	TRANSISTOR XN6534
Q43	8-729-175-73	s	TRANSISTOR 2SC2757
Q44	8-729-109-44	s	TRANSISTOR 2SK94
Q45	8-729-122-63	s	TRANSISTOR 2SA1226
Q46	8-729-403-29	s	TRANSISTOR XN6435
Q47	8-729-403-29	s	TRANSISTOR XN6435

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q48	8-729-403-32	s	TRANSISTOR XN6534
Q49	8-729-403-29	s	TRANSISTOR XN6435
Q50	8-729-403-32	s	TRANSISTOR XN6534
Q51	8-729-122-63	s	TRANSISTOR 2SA1226
Q52	8-729-403-32	s	TRANSISTOR XN6534
Q53	8-729-403-32	s	TRANSISTOR XN6534
Q54	8-729-403-32	s	TRANSISTOR XN6534
Q55	8-729-122-63	s	TRANSISTOR 2SA1226
Q56	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q57	8-729-109-44	s	TRANSISTOR 2SK94
Q58	8-729-122-63	s	TRANSISTOR 2SA1226
Q59	8-729-122-63	s	TRANSISTOR 2SA1226
Q60	8-729-122-63	s	TRANSISTOR 2SA1226
Q61	8-729-122-63	s	TRANSISTOR 2SA1226
Q62	8-729-122-63	s	TRANSISTOR 2SA1226
Q63	8-729-109-44	s	TRANSISTOR 2SK94
Q64	8-729-109-44	s	TRANSISTOR 2SK94
Q65	8-729-109-44	s	TRANSISTOR 2SK94
Q66	8-729-122-63	s	TRANSISTOR 2SA1226
Q67	8-729-403-32	s	TRANSISTOR XN6534
Q68	8-729-175-73	s	TRANSISTOR 2SC2757
Q69	8-729-109-44	s	TRANSISTOR 2SK94
Q70	8-729-122-63	s	TRANSISTOR 2SA1226
Q71	8-729-403-29	s	TRANSISTOR XN6435
Q72	8-729-403-29	s	TRANSISTOR XN6435
Q73	8-729-403-32	s	TRANSISTOR XN6534
Q74	8-729-403-29	s	TRANSISTOR XN6435
Q75	8-729-403-32	s	TRANSISTOR XN6534
Q76	8-729-403-32	s	TRANSISTOR XN6534
Q77	8-729-403-32	s	TRANSISTOR XN6534
Q78	8-729-403-32	s	TRANSISTOR XN6534
Q79	8-729-403-32	s	TRANSISTOR XN6534
Q80	8-729-403-32	s	TRANSISTOR XN6534
Q81	8-729-403-32	s	TRANSISTOR XN6534
Q82	8-729-402-19	s	TRANSISTOR XN6501
Q83	8-729-403-29	s	TRANSISTOR XN6435
Q84	8-729-403-29	s	TRANSISTOR XN6435
Q85	8-729-402-78	s	TRANSISTOR XN6401
Q86	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q87	8-729-403-29	s	TRANSISTOR XN6435
Q88	8-729-402-19	s	TRANSISTOR XN6501
Q89	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q95	8-729-403-29	s	TRANSISTOR XN6435
Q96	8-729-403-32	s	TRANSISTOR XN6534
Q97	8-729-402-19	s	TRANSISTOR XN6501
Q98	8-729-402-19	s	TRANSISTOR XN6501
Q99	8-729-402-19	s	TRANSISTOR XN6501
Q108	8-729-216-22	s	TRANSISTOR 2SA1162
Q110	8-729-216-22	s	TRANSISTOR 2SA1162
Q112	8-729-216-22	s	TRANSISTOR 2SA1162
Q116	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q117	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q118	8-729-216-22	s	TRANSISTOR 2SA1162
Q122	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q123	8-729-109-44	s	TRANSISTOR 2SK94
R1	1-218-668-11	s	METAL 100 0.50% 1/16W
R2	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R3	1-218-732-11	s	METAL 47K 0.50% 1/16W
R4	1-218-732-11	s	METAL 47K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R5	1-218-668-11	s	METAL 100 0.50% 1/16W
R6	1-216-865-11	s	METAL, CHIP 3K 1/16W
R7	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R8	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R9	1-216-865-11	s	METAL, CHIP 3K 1/16W
R10	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R11	1-218-734-11	s	METAL 56K 0.50% 1/16W
R12	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R13	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R15	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R16	1-218-734-11	s	METAL 56K 0.50% 1/16W
R17	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R18	1-218-716-11	s	METAL 10K 0.50% 1/16W
R19	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R20	1-218-716-11	s	METAL 10K 0.50% 1/16W
R21	1-218-716-11	s	METAL 10K 0.50% 1/16W
R22	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R23	1-215-437-00	s	METAL 4.7K 1% 1/6W
R24	1-218-716-11	s	METAL 10K 0.50% 1/16W
R25	1-216-865-11	s	METAL, CHIP 3K 1/16W
R28	1-218-344-11	s	METAL 7.5K 0.50% 1/16W
R29	1-216-864-11	s	METAL, CHIP 0-OHM
R30	1-218-664-11	s	METAL 68 0.50% 1/16W
R31	1-218-660-11	s	METAL 47 0.50% 1/16W
R32	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R33	1-218-716-11	s	METAL 10K 0.50% 1/16W
R34	1-218-664-11	s	METAL 68 0.50% 1/16W
R35	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R36	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R37	1-218-675-11	s	METAL 200 0.50% 1/16W
R38	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R39	1-218-344-11	s	METAL 7.5K 0.50% 1/16W
R40	1-218-269-11	s	METAL, CHIP 360 5% 1/16W
R41	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R42	1-218-716-11	s	METAL 10K 0.50% 1/16W
R43	1-218-716-11	s	METAL 10K 0.50% 1/16W
R44	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R45	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R46	1-218-484-11	s	METAL 750 0.50% 1/16W
R47	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R48	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R49	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R50	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R51	1-218-668-11	s	METAL 100 0.50% 1/16W
R52	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R53	1-218-668-11	s	METAL 100 0.50% 1/16W
R54	1-218-716-11	s	METAL 10K 0.50% 1/16W
R55	1-218-740-11	s	METAL 100K 0.50% 1/16W
R56	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R57	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R59	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R60	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R62	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R63	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R64	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R65	1-218-720-11	s	METAL 15K 0.50% 1/16W
R66	1-218-271-11	s	METAL 2K 0.50% 1/16W
R67	1-218-740-11	s	METAL 100K 0.50% 1/16W
R70	1-218-345-11	s	METAL 9.1K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R71	1-218-668-11	s	METAL 100 0.50% 1/16W
R72	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R73	1-218-668-11	s	METAL 100 0.50% 1/16W
R74	1-218-345-11	s	METAL 9.1K 0.50% 1/16W
R75	1-218-668-11	s	METAL 100 0.50% 1/16W
R76	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R77	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R78	1-218-270-11	s	METAL 1.1K 0.50% 1/16W
R79	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R80	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R81	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R82	1-218-668-11	s	METAL 100 0.50% 1/16W
R83	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R84	1-218-732-11	s	METAL 47K 0.50% 1/16W
R85	1-218-732-11	s	METAL 47K 0.50% 1/16W
R86	1-218-668-11	s	METAL 100 0.50% 1/16W
R87	1-216-865-11	s	METAL, CHIP 3K 1/16W
R88	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R89	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R90	1-216-865-11	s	METAL, CHIP 3K 1/16W
R91	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R92	1-218-734-11	s	METAL 56K 0.50% 1/16W
R93	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R94	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R96	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R97	1-218-734-11	s	METAL 56K 0.50% 1/16W
R98	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R99	1-218-716-11	s	METAL 10K 0.50% 1/16W
R100	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R101	1-218-716-11	s	METAL 10K 0.50% 1/16W
R103	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R104	1-218-716-11	s	METAL 10K 0.50% 1/16W
R105	1-218-716-11	s	METAL 10K 0.50% 1/16W
R106	1-218-707-11	s	METAL 4.3K 0.50% 1/16W
R109	1-218-344-11	s	METAL 7.5K 0.50% 1/16W
R110	1-216-864-11	s	METAL, CHIP 0-OHM
R111	1-218-664-11	s	METAL 68 0.50% 1/16W
R112	1-218-660-11	s	METAL 47 0.50% 1/16W
R113	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R114	1-218-716-11	s	METAL 10K 0.50% 1/16W
R115	1-218-664-11	s	METAL 68 0.50% 1/16W
R116	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R117	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R118	1-218-675-11	s	METAL 200 0.50% 1/16W
R119	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R120	1-218-344-11	s	METAL 7.5K 0.50% 1/16W
R121	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R122	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R123	1-218-716-11	s	METAL 10K 0.50% 1/16W
R124	1-218-716-11	s	METAL 10K 0.50% 1/16W
R125	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R126	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R127	1-218-484-11	s	METAL 750 0.50% 1/16W
R128	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R129	1-218-269-11	s	METAL, CHIP 360 5% 1/16W
R130	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R131	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R132	1-218-668-11	s	METAL 100 0.50% 1/16W
R133	1-218-295-11	s	METAL 5.6K 0.50% 1/16W

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R134	1-218-668-11	s	METAL 100 0.50% 1/16W
R135	1-218-716-11	s	METAL 10K 0.50% 1/16W
R136	1-218-740-11	s	METAL 100K 0.50% 1/16W
R137	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R138	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R140	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R141	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R143	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R144	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R145	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R146	1-218-720-11	s	METAL 15K 0.50% 1/16W
R147	1-218-271-11	s	METAL 2K 0.50% 1/16W
R148	1-218-740-11	s	METAL 100K 0.50% 1/16W
R153	1-218-345-11	s	METAL 9.1K 0.50% 1/16W
R154	1-218-668-11	s	METAL 100 0.50% 1/16W
R155	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R156	1-218-668-11	s	METAL 100 0.50% 1/16W
R157	1-218-345-11	s	METAL 9.1K 0.50% 1/16W
R158	1-218-668-11	s	METAL 100 0.50% 1/16W
R159	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R160	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R161	1-218-270-11	s	METAL 1.1K 0.50% 1/16W
R162	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R163	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R164	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R165	1-218-668-11	s	METAL 100 0.50% 1/16W
R166	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R167	1-218-732-11	s	METAL 47K 0.50% 1/16W
R168	1-218-732-11	s	METAL 47K 0.50% 1/16W
R169	1-218-668-11	s	METAL 100 0.50% 1/16W
R170	1-216-865-11	s	METAL, CHIP 3K 1/16W
R171	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R172	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R173	1-216-865-11	s	METAL, CHIP 3K 1/16W
R174	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R175	1-218-734-11	s	METAL 56K 0.50% 1/16W
R176	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R177	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R179	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R180	1-218-734-11	s	METAL 56K 0.50% 1/16W
R181	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R182	1-218-716-11	s	METAL 10K 0.50% 1/16W
R183	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R184	1-218-716-11	s	METAL 10K 0.50% 1/16W
R185	1-218-716-11	s	METAL 10K 0.50% 1/16W
R186	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R187	1-215-437-00	s	METAL 4.7K 1% 1/6W
R188	1-218-716-11	s	METAL 10K 0.50% 1/16W
R189	1-216-865-11	s	METAL, CHIP 3K 1/16W
R192	1-218-344-11	s	METAL 7.5K 0.50% 1/16W
R193	1-216-864-11	s	METAL, CHIP 0-OHM
R194	1-218-664-11	s	METAL 68 0.50% 1/16W
R195	1-218-660-11	s	METAL 47 0.50% 1/16W
R196	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R197	1-218-716-11	s	METAL 10K 0.50% 1/16W
R198	1-218-664-11	s	METAL 68 0.50% 1/16W
R199	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R200	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R201	1-218-675-11	s	METAL 200 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R202	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R203	1-218-344-11	s	METAL 7.5K 0.50% 1/16W
R204	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R205	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R206	1-218-716-11	s	METAL 10K 0.50% 1/16W
R207	1-218-716-11	s	METAL 10K 0.50% 1/16W
R208	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R209	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R210	1-218-484-11	s	METAL 750 0.50% 1/16W
R211	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R212	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R213	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R214	1-218-269-11	s	METAL, CHIP 360 5% 1/16W
R215	1-218-668-11	s	METAL 100 0.50% 1/16W
R216	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R217	1-218-668-11	s	METAL 100 0.50% 1/16W
R218	1-218-716-11	s	METAL 10K 0.50% 1/16W
R219	1-218-740-11	s	METAL 100K 0.50% 1/16W
R220	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R221	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R223	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R224	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R226	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R227	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R228	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R229	1-218-720-11	s	METAL 15K 0.50% 1/16W
R230	1-218-271-11	s	METAL 2K 0.50% 1/16W
R231	1-218-740-11	s	METAL 100K 0.50% 1/16W
R234	1-218-345-11	s	METAL 9.1K 0.50% 1/16W
R235	1-218-668-11	s	METAL 100 0.50% 1/16W
R236	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R237	1-218-668-11	s	METAL 100 0.50% 1/16W
R238	1-218-345-11	s	METAL 9.1K 0.50% 1/16W
R239	1-218-668-11	s	METAL 100 0.50% 1/16W
R240	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R241	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R242	1-218-270-11	s	METAL 1.1K 0.50% 1/16W
R243	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R244	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R245	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R246	1-218-668-11	s	METAL 100 0.50% 1/16W
R247	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R248	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R249	1-216-864-11	s	METAL, CHIP 0-OHM
R250	1-218-668-11	s	METAL 100 0.50% 1/16W
R251	1-218-484-11	s	METAL 750 0.50% 1/16W
R252	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R253	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R254	1-216-864-11	s	METAL, CHIP 0-OHM
R255	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R256	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R257	1-218-668-11	s	METAL 100 0.50% 1/16W
R258	1-218-668-11	s	METAL 100 0.50% 1/16W
R259	1-218-668-11	s	METAL 100 0.50% 1/16W
R260	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R261	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R262	1-216-864-11	s	METAL, CHIP 0-OHM
R263	1-218-668-11	s	METAL 100 0.50% 1/16W
R264	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R265	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R266	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R267	1-216-864-11	s	METAL, CHIP 0-OHM
R268	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R269	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R270	1-218-668-11	s	METAL 100 0.50% 1/16W
R271	1-218-668-11	s	METAL 100 0.50% 1/16W
R272	1-218-668-11	s	METAL 100 0.50% 1/16W
R273	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R274	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R275	1-216-864-11	s	METAL, CHIP 0-OHM
R276	1-218-668-11	s	METAL 100 0.50% 1/16W
R277	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R278	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R279	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R280	1-216-864-11	s	METAL, CHIP 0-OHM
R281	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R282	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R283	1-218-668-11	s	METAL 100 0.50% 1/16W
R284	1-218-668-11	s	METAL 100 0.50% 1/16W
R285	1-218-716-11	s	METAL 10K 0.50% 1/16W
R286	1-218-724-11	s	METAL 22K 0.50% 1/16W
R287	1-218-724-11	s	METAL 22K 0.50% 1/16W
R288	1-218-740-11	s	METAL 100K 0.50% 1/16W
R289	1-218-732-11	s	METAL 47K 0.50% 1/16W
R290	1-218-740-11	s	METAL 100K 0.50% 1/16W
R291	1-218-732-11	s	METAL 47K 0.50% 1/16W
R292	1-218-720-11	s	METAL 15K 0.50% 1/16W
R293	1-218-720-11	s	METAL 15K 0.50% 1/16W
R294	1-218-720-11	s	METAL 15K 0.50% 1/16W
R295	1-218-668-11	s	METAL 100 0.50% 1/16W
R296	1-218-668-11	s	METAL 100 0.50% 1/16W
R298	1-218-716-11	s	METAL 10K 0.50% 1/16W
R299	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R300	1-218-668-11	s	METAL 100 0.50% 1/16W
R301	1-218-668-11	s	METAL 100 0.50% 1/16W
R302	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R305	1-218-716-11	s	METAL 10K 0.50% 1/16W
R307	1-218-732-11	s	METAL 47K 0.50% 1/16W
R308	1-218-883-11	s	METAL 33K 0.50% 1/16W
R309	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R310	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R311	1-218-676-11	s	METAL 220 0.50% 1/16W
R312	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R313	1-218-676-11	s	METAL 220 0.50% 1/16W
R314	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R315	1-218-716-11	s	METAL 10K 0.50% 1/16W
R316	1-218-716-11	s	METAL 10K 0.50% 1/16W
R317	1-218-676-11	s	METAL 220 0.50% 1/16W
R318	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R319	1-218-716-11	s	METAL 10K 0.50% 1/16W
R320	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R321	1-218-725-11	s	METAL 24K 0.50% 1/16W
R322	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R323	1-218-740-11	s	METAL 100K 0.50% 1/16W
R324	1-218-330-11	s	METAL 11K 0.50% 1/16W
R325	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R329	1-218-660-11	s	METAL 47 0.50% 1/16W
R330	1-218-660-11	s	METAL 47 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R331	1-218-660-11	s	METAL 47 0.50% 1/16W
R350	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R351	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R352	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R353	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R354	1-218-740-11	s	METAL 100K 0.50% 1/16W
R355	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R356	1-218-724-11	s	METAL 22K 0.50% 1/16W
R357	1-218-740-11	s	METAL 100K 0.50% 1/16W
R358	1-218-740-11	s	METAL 100K 0.50% 1/16W
R359	1-218-724-11	s	METAL 22K 0.50% 1/16W
R360	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R361	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R362	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R363	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R366	1-218-720-11	s	METAL 15K 0.50% 1/16W
R367	1-218-668-11	s	METAL 100 0.50% 1/16W
R368	1-218-668-11	s	METAL 100 0.50% 1/16W
R369	1-218-668-11	s	METAL 100 0.50% 1/16W
R372	1-218-668-11	s	METAL 100 0.50% 1/16W
R374	1-218-716-11	s	METAL 10K 0.50% 1/16W
R377	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R381	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R390	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R399	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R400	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R401	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R402	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R403	1-218-720-11	s	METAL 15K 0.50% 1/16W
R407	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R411	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R415	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R433	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R434	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R435	1-218-716-11	s	METAL 10K 0.50% 1/16W
R438	1-218-740-11	s	METAL 100K 0.50% 1/16W
R439	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R440	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R441	1-216-864-11	s	METAL, CHIP 0-OHM
R442	1-216-864-11	s	METAL, CHIP 0-OHM
R443	1-216-864-11	s	METAL, CHIP 0-OHM
R444	1-216-864-11	s	METAL, CHIP 0-OHM
R445	1-216-864-11	s	METAL, CHIP 0-OHM
R447	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R454	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R455	1-218-740-11	s	METAL 100K 0.50% 1/16W
R456	1-218-732-11	s	METAL 47K 0.50% 1/16W
R457	1-218-724-11	s	METAL 22K 0.50% 1/16W
R458	1-218-734-11	s	METAL 56K 0.50% 1/16W
R459	1-218-716-11	s	METAL 10K 0.50% 1/16W
R460	1-218-716-11	s	METAL 10K 0.50% 1/16W
R461	1-218-716-11	s	METAL 10K 0.50% 1/16W
R546	1-216-864-11	s	METAL, CHIP 0-OHM
RV1	1-237-034-11	s	RES, ADJ, METAL 2K
RV2	1-241-265-11	s	RES, ADJ, CERMET 20K
RV3	1-237-035-11	s	RES, ADJ, METAL 5K
RV4	1-241-264-11	s	RES, ADJ, CERMET 10K
RV5	1-237-031-11	s	RES, ADJ, METAL 200

(PR-179 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV7	1-237-034-11	s	RES, ADJ, METAL 2K
RV8	1-237-034-11	s	RES, ADJ, METAL 2K
RV9	1-241-265-11	s	RES, ADJ, CERMET 20K
RV10	1-237-035-11	s	RES, ADJ, METAL 5K
RV11	1-241-264-11	s	RES, ADJ, CERMET 10K
RV12	1-237-031-11	s	RES, ADJ, METAL 200
RV13	1-237-034-11	s	RES, ADJ, METAL 2K
RV14	1-237-034-11	s	RES, ADJ, METAL 2K
RV15	1-241-265-11	s	RES, ADJ, CERMET 20K
RV16	1-237-035-11	s	RES, ADJ, METAL 5K
RV17	1-241-264-11	s	RES, ADJ, CERMET 10K
RV18	1-237-031-11	s	RES, ADJ, METAL 200
RV20	1-237-034-11	s	RES, ADJ, METAL 2K
RV21	1-237-035-11	s	RES, ADJ, METAL 5K
RV22	1-237-035-11	s	RES, ADJ, METAL 5K
RV23	1-237-035-11	s	RES, ADJ, METAL 5K
RV24	1-237-035-11	s	RES, ADJ, METAL 5K
RV25	1-237-035-11	s	RES, ADJ, METAL 5K
RV26	1-237-035-11	s	RES, ADJ, METAL 5K
RV27	1-241-265-11	s	RES, ADJ, CERMET 20K
RV28	1-241-265-11	s	RES, ADJ, CERMET 20K
RV33	1-241-263-11	s	RES, ADJ, CERMET 5K
RV34	1-241-263-11	s	RES, ADJ, CERMET 5K
RV35	1-241-263-11	s	RES, ADJ, CERMET 5K
RV36	1-237-038-11	s	RES, ADJ, METAL 50K
RV37	1-237-034-11	s	RES, ADJ, METAL 2K
S1	1-570-610-11	s	SWITCH, TOGGLE
S2	1-570-857-11	s	SWITCH, SLIDE
S3	1-570-857-11	s	SWITCH, SLIDE
TH1	1-807-361-11	s	THERMISTOR, POSITIVE
TH2	1-807-361-11	s	THERMISTOR, POSITIVE
TH3	1-807-361-11	s	THERMISTOR, POSITIVE

PR-182 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C200	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C201	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C202	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C203	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C204	1-135-073-00	s	TANTALUM, CHIP 0.33uF 10% 35V
C205	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C206	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C207	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C208	1-165-128-11	s	CERAMIC 0.22uF 16V
C209	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C210	1-164-156-11	s	CERAMIC 0.1uF 25V
C211	1-164-156-11	s	CERAMIC 0.1uF 25V
C212	1-164-156-11	s	CERAMIC 0.1uF 25V
C213	1-164-156-11	s	CERAMIC 0.1uF 25V
C214	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C215	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C220	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-164-156-11	s	CERAMIC 0.1uF 25V
C222	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C223	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C224	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C225	1-164-156-11	s	CERAMIC 0.1uF 25V
C227	1-164-156-11	s	CERAMIC 0.1uF 25V
CN2	1-568-356-11	s	CONNECTOR, BOARD TO BOARD 14P
CN3	1-568-354-41	s	CONNECTOR, BOARD TO BOARD 10P
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-800-76	s	DIODE 1SS226
D4	8-719-800-76	s	DIODE 1SS226
IC1	8-759-209-57	s	IC TC4S69F
IC2	8-759-512-38	s	IC AD847JR
IC3	8-759-234-77	s	IC TC4S66F
IC4	8-759-906-53	s	IC TL062CPS
IC5	8-759-242-64	s	IC TC4W53F
IC6	8-759-061-99	s	IC LM6365M
IC7	8-759-998-12	s	IC TL032CPS
IC8	8-759-998-12	s	IC TL032CPS
Q1	8-729-403-32	s	TRANSISTOR XN6534
Q2	8-729-403-32	s	TRANSISTOR XN6534
Q3	8-729-403-32	s	TRANSISTOR XN6534
Q4	8-729-109-44	s	TRANSISTOR 2SK94
Q5	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q6	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q7	8-729-216-22	s	TRANSISTOR 2SA1162
Q8	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q9	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q10	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
R500	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R501	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R502	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R503	1-218-716-11	s	METAL 10K 0.50% 1/16W
R504	1-218-704-11	s	METAL 3.3K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(PR-182 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R505	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R506	1-218-668-11	s	METAL 100 0.50% 1/16W
R507	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R508	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R509	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R510	1-218-668-11	s	METAL 100 0.50% 1/16W
R511	1-218-716-11	s	METAL 10K 0.50% 1/16W
R512	1-218-716-11	s	METAL 10K 0.50% 1/16W
R513	1-218-716-11	s	METAL 10K 0.50% 1/16W
R514	1-218-716-11	s	METAL 10K 0.50% 1/16W
R515	1-218-484-11	s	METAL 750 0.50% 1/16W
R516	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R517	1-218-724-11	s	METAL 22K 0.50% 1/16W
R518	1-218-724-11	s	METAL 22K 0.50% 1/16W
R519	1-218-752-11	s	METAL 330K 0.50% 1/16W
R520	1-218-748-11	s	METAL 220K 0.50% 1/16W
R521	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R522	1-218-721-11	s	METAL 16K 0.50% 1/16W
R523	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R524	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R525	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R526	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R527	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R528	1-218-716-11	s	METAL 10K 0.50% 1/16W
R529	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R529	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R530	1-218-725-11	s	METAL 24K 0.50% 1/16W
R531	1-218-740-11	s	METAL 100K 0.50% 1/16W
R532	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R533	1-218-716-11	s	METAL 10K 0.50% 1/16W
R534	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R535	1-218-716-11	s	METAL 10K 0.50% 1/16W
R536	1-216-801-11	s	METAL, CHIP 22 5% 1/16W
R537	1-218-716-11	s	METAL 10K 0.50% 1/16W
R538	1-218-727-11	s	METAL 30K 0.50% 1/16W
R539	1-218-727-11	s	METAL 30K 0.50% 1/16W
R540	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R541	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R542	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R543	1-218-716-11	s	METAL 10K 0.50% 1/16W
R544	1-218-668-11	s	METAL 100 0.50% 1/16W
R545	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R546	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R547	1-218-727-11	s	METAL 30K 0.50% 1/16W
R548	1-218-727-11	s	METAL 30K 0.50% 1/16W
R549	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R550	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R551	1-218-716-11	s	METAL 10K 0.50% 1/16W
R552	1-218-668-11	s	METAL 100 0.50% 1/16W
R553	1-218-727-11	s	METAL 30K 0.50% 1/16W
R554	1-218-727-11	s	METAL 30K 0.50% 1/16W
R555	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R556	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R557	1-218-716-11	s	METAL 10K 0.50% 1/16W
R558	1-218-668-11	s	METAL 100 0.50% 1/16W
R560	1-218-724-11	s	METAL 22K 0.50% 1/16W
R561	1-218-724-11	s	METAL 22K 0.50% 1/16W
RV40	1-237-034-11	s	RES, ADJ, METAL 2K

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(PR-182 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV41	1-237-035-11	s	RES, ADJ, METAL 5K
RV42	1-237-034-11	s	RES, ADJ, METAL 2K
RV43	1-237-034-11	s	RES, ADJ, METAL 2K
RV44	1-237-035-11	s	RES, ADJ, METAL 5K
RV45	1-237-035-11	s	RES, ADJ, METAL 5K

RG-31 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-618-A	o	MOUNTED CIRCUIT BOARD, RG-31
C1	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C2	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C3	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C5	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C6	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C7	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C8	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C9	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C10	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C11	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C12	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C13	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C14	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C15	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
CN307	1-580-536-11	s	PIN, CONNECTOR (PC BOARD) 14P
CN308	1-568-334-11	s	CONNECTOR, BOARD TO BOARD 16P
CN309	1-565-135-11	o	PIN, CONNECTOR (STRAIGHT) 2P
D1	8-719-800-76	s	DIODE 1SS226
IC1	8-759-011-65	s	IC MC74HC4053F
IC2	8-759-031-84	s	IC SC7S04F
IC3	8-759-209-15	s	IC TC4SU69F
IC4	8-759-011-65	s	IC MC74HC4053F
L1	1-408-785-21	s	INDUCTOR, CHIP 47uH
L2	1-408-785-21	s	INDUCTOR, CHIP 47uH
L3	1-408-785-21	s	INDUCTOR, CHIP 47uH
L4	1-408-785-21	s	INDUCTOR, CHIP 47uH
Q1	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q2	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q3	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q4	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q5	8-729-122-63	s	TRANSISTOR 2SA1226
Q6	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q7	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q8	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q9	8-765-420-03	s	TRANSISTOR 2SK300-4
Q10	8-765-420-03	s	TRANSISTOR 2SK300-4
Q11	8-765-420-03	s	TRANSISTOR 2SK300-4
Q12	8-729-122-63	s	TRANSISTOR 2SA1226
Q13	8-729-122-63	s	TRANSISTOR 2SA1226
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q16	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q17	8-729-122-63	s	TRANSISTOR 2SA1226
Q18	8-729-122-63	s	TRANSISTOR 2SA1226
Q19	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q20	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q21	8-729-122-63	s	TRANSISTOR 2SA1226
Q22	8-729-216-22	s	TRANSISTOR 2SA1162
Q23	8-729-216-22	s	TRANSISTOR 2SA1162
Q24	8-729-216-22	s	TRANSISTOR 2SA1162
Q25	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q26	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q27	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q28	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q29	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q30	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6

(RG-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q36	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q37	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q38	8-729-122-63	s	TRANSISTOR 2SA1226
Q39	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q40	8-729-122-63	s	TRANSISTOR 2SA1226
Q41	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q42	8-729-122-63	s	TRANSISTOR 2SA1226
R1	1-218-668-11	s	METAL 100 0.50% 1/16W
R2	1-218-668-11	s	METAL 100 0.50% 1/16W
R3	1-218-668-11	s	METAL 100 0.50% 1/16W
R4	1-218-668-11	s	METAL 100 0.50% 1/16W
R5	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R8	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R9	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R10	1-218-668-11	s	METAL 100 0.50% 1/16W
R11	1-218-668-11	s	METAL 100 0.50% 1/16W
R12	1-218-668-11	s	METAL 100 0.50% 1/16W
R13	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R14	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R15	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R16	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R17	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R18	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R19	1-218-668-11	s	METAL 100 0.50% 1/16W
R20	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R21	1-218-668-11	s	METAL 100 0.50% 1/16W
R22	1-218-716-11	s	METAL 10K 0.50% 1/16W
R23	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R24	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R25	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R26	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R27	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R28	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R29	1-218-695-11	s	METAL 1.3K 0.50% 1/16W
R30	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R31	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R32	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R33	1-218-271-11	s	METAL 2K 0.50% 1/16W
R34	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R35	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R36	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R37	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R38	1-216-793-11	s	METAL, CHIP 4.7 5% 1/16W
R39	1-216-793-11	s	METAL, CHIP 4.7 5% 1/16W
R40	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R41	1-218-740-11	s	METAL 100K 0.50% 1/16W
R42	1-218-736-11	s	METAL 68K 0.50% 1/16W
R43	1-218-732-11	s	METAL 47K 0.50% 1/16W
R44	1-218-736-11	s	METAL 68K 0.50% 1/16W
R45	1-218-732-11	s	METAL 47K 0.50% 1/16W
R46	1-218-736-11	s	METAL 68K 0.50% 1/16W
R47	1-218-732-11	s	METAL 47K 0.50% 1/16W
R48	1-218-732-11	s	METAL 47K 0.50% 1/16W
R49	1-218-740-11	s	METAL 100K 0.50% 1/16W
R50	1-218-748-11	s	METAL 220K 0.50% 1/16W
R51	1-218-740-11	s	METAL 100K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(RG-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R52	1-218-740-11	s	METAL 100K 0.50% 1/16W
R53	1-218-732-11	s	METAL 47K 0.50% 1/16W
R54	1-218-732-11	s	METAL 47K 0.50% 1/16W
R55	1-218-740-11	s	METAL 100K 0.50% 1/16W
R56	1-218-748-11	s	METAL 220K 0.50% 1/16W
R57	1-218-740-11	s	METAL 100K 0.50% 1/16W
R58	1-218-740-11	s	METAL 100K 0.50% 1/16W
R59	1-218-748-11	s	METAL 220K 0.50% 1/16W
R60	1-218-740-11	s	METAL 100K 0.50% 1/16W
R61	1-218-740-11	s	METAL 100K 0.50% 1/16W
R62	1-218-740-11	s	METAL 100K 0.50% 1/16W
R63	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R64	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R65	1-218-668-11	s	METAL 100 0.50% 1/16W
R66	1-218-668-11	s	METAL 100 0.50% 1/16W
R67	1-218-668-11	s	METAL 100 0.50% 1/16W
R68	1-218-716-11	s	METAL 10K 0.50% 1/16W
R69	1-218-724-11	s	METAL 22K 0.50% 1/16W
R70	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R71	1-218-740-11	s	METAL 100K 0.50% 1/16W
R75	1-218-271-11	s	METAL 2K 0.50% 1/16W
R77	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R78	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R79	1-218-272-11	s	METAL 5.1K 0.50% 1/16W
R80	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R81	1-216-793-11	s	METAL, CHIP 4.7 5% 1/16W
R82	1-216-793-11	s	METAL, CHIP 4.7 5% 1/16W
R83	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R84	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R85	1-216-864-11	s	METAL, CHIP 0-OHM
R86	1-218-313-11	s	METAL, CHIP 560 1% 1/16W
R87	1-218-271-11	s	METAL 2K 0.50% 1/16W
R88	1-215-413-00	s	METAL 470 1% 1/6W
RV2	1-237-033-11	s	RES, ADJ, METAL 1K
S1	1-692-270-21	s	SWITCH, SLIDE
S2	1-570-839-11	s	SWITCH, SLIDE
S3	1-570-988-11	s	SWITCH, TOGGLE
S4	1-570-607-11	s	SWITCH, TOGGLE

RG-32 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-619-A	o	MOUNTED CIRCUIT BOARD, RG-32
C3	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C4	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C5	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C6	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C7	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C8	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C9	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C11	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C12	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C13	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C14	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C15	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C16	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C17	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C18	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C19	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C20	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C21	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C22	1-124-290-00	s	ELECT 47uF 20% 6.3V
CN301	1-568-366-11	s	CONNECTOR, BOARD TO BOARD 16P
CN302	1-565-139-11	o	PIN, CONNECTOR (STRAIGHT) 6P
CN303	1-565-136-11	o	PIN, CONNECTOR (STRAIGHT) 3P
CN304	1-565-147-11	o	PIN, CONNECTOR (STRAIGHT) 14P
CN305	1-565-146-11	o	PIN, CONNECTOR (STRAIGHT) 13P
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-974-76	s	DIODE HSM107S
D3	8-719-974-76	s	DIODE HSM107S
IC1	8-759-011-65	s	IC MC74HC4053F
IC2	8-759-083-94	s	IC TC7W74FU
IC3	8-759-011-65	s	IC MC74HC4053F
L1	1-408-785-21	s	INDUCTOR, CHIP 47uH
L2	1-408-785-21	s	INDUCTOR, CHIP 47uH
Q1	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q2	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q3	8-729-122-63	s	TRANSISTOR 2SA1226
Q4	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q5	8-729-162-13	s	TRANSISTOR 2SC1621
Q6	8-729-162-13	s	TRANSISTOR 2SC1621
Q7	8-729-122-63	s	TRANSISTOR 2SA1226
Q8	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q9	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q10	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q11	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q12	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q13	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q14	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q15	8-729-216-22	s	TRANSISTOR 2SA1162
Q16	8-729-216-22	s	TRANSISTOR 2SA1162
R1	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R2	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R3	1-218-270-11	s	METAL 1.1K 0.50% 1/16W
R4	1-216-816-11	s	METAL, CHIP 390 5% 1/16W
R5	1-216-864-11	s	METAL, CHIP 0-OHM
R6	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R8	1-218-698-11	s	METAL 1.8K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(RG-32 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R9	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R10	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R11	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R12	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R13	1-218-716-11	s	METAL 10K 0.50% 1/16W
R14	1-218-732-11	s	METAL 47K 0.50% 1/16W
R15	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R16	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R17	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R18	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R19	1-218-716-11	s	METAL 10K 0.50% 1/16W
R20	1-218-716-11	s	METAL 10K 0.50% 1/16W
R22	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R23	1-218-724-11	s	METAL 22K 0.50% 1/16W
R24	1-218-724-11	s	METAL 22K 0.50% 1/16W
R25	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R26	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R27	1-218-732-11	s	METAL 47K 0.50% 1/16W
R28	1-218-668-11	s	METAL 100 0.50% 1/16W
R29	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R30	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R31	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R32	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R33	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R34	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R35	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R36	1-218-660-11	s	METAL 47 0.50% 1/16W
R37	1-218-668-11	s	METAL 100 0.50% 1/16W
R38	1-218-716-11	s	METAL 10K 0.50% 1/16W
R39	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R40	1-218-272-11	s	METAL 5.1K 0.50% 1/16W
R41	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R42	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R43	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R44	1-218-668-11	s	METAL 100 0.50% 1/16W
R45	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R46	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R47	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R48	1-218-668-11	s	METAL 100 0.50% 1/16W
R49	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R50	1-216-864-11	s	METAL, CHIP 0-OHM
R51	1-216-864-11	s	METAL, CHIP 0-OHM
R52	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R53	1-218-740-11	s	METAL 100K 0.50% 1/16W
R54	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R55	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R56	1-218-660-11	s	METAL 47 0.50% 1/16W
R57	1-218-668-11	s	METAL 100 0.50% 1/16W
R58	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R59	1-218-740-11	s	METAL 100K 0.50% 1/16W
R60	1-218-724-11	s	METAL 22K 0.50% 1/16W
R61	1-218-724-11	s	METAL 22K 0.50% 1/16W
R62	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
RV1	1-237-032-11	s	RES, ADJ, METAL 500
RV2	1-237-033-11	s	RES, ADJ, METAL 1K

SG-206P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-633-A	o	MOUNTED CIRCUIT BOARD, SG-206P
2pcs	3-175-429-01	s	KNOB, PULL OUT
4pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
2pcs	7-688-001-12	s	W 2, MIDDLE
C1	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C2	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C3	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C4	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C5	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C6	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C7	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C8	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C9	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C10	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C11	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C12	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C13	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C14	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C15	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C16	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C17	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C18	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C19	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C20	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C21	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C22	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C23	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C24	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C25	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C26	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C27	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C47	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C48	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C49	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C54	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C55	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C56	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C59	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C60	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C62	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C63	1-135-072-21	s	TANTALUM, CHIP 0.22uF 10% 35V
C64	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C65	1-164-217-11	s	CERAMIC 150PF 5% 50V
C66	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C67	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C68	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C69	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C70	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C71	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C72	1-164-315-11	s	CERAMIC 470PF 5% 50V
C73	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C75	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C76	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C78	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C79	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C81	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C82	1-162-963-11	s	CERAMIC, CHIP 680PF 10% 50V

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(SG-206P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C83	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C86	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C87	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C88	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C89	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C90	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C91	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C92	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C93	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C94	1-162-922-11	s	CERAMIC, CHIP 39PF 5% 50V
C95	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C96	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C97	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C99	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C100	1-137-302-11	s	FILM 0.047uF 5% 16V
C101	1-135-160-21	s	TANTALUM, CHIP 15uF 10% 16V
C103	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C104	1-135-072-21	s	TANTALUM, CHIP 0.22uF 10% 35V
C105	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C106	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C107	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C108	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C109	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C110	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C114	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
CN1	1-566-960-11	o	CONNECTOR, 50P, MALE
CP1	1-579-717-11	s	OSCILLATOR, CRYSTAL 28.375MHz
CP2	1-579-718-11	s	OSCILLATOR, CRYSTAL 17.734MHz
D5	8-719-800-76	s	DIODE 1SS226
D9	8-719-800-76	s	DIODE 1SS226
D11	8-719-800-76	s	DIODE 1SS226
D12	8-719-800-76	s	DIODE 1SS226
D13	8-719-800-76	s	DIODE 1SS226
D14	8-719-800-76	s	DIODE 1SS226
D15	8-719-974-76	s	DIODE HSM107S
FL1	1-239-527-11	s	FILTER (PAL BLANKING), LOW-PASS
FL2	1-239-374-11	s	FILTER, BANDPASS
IC1	8-759-242-64	s	IC TC4W53F
IC2	8-759-902-88	s	IC SN74LS123NS
IC3	8-759-929-21	s	IC TLC27L2CPS
IC4	8-759-038-46	s	IC SC7S00F
IC5	8-759-239-23	s	IC SN74HC86NS
IC6	8-759-234-77	s	IC TC4S66F
IC7	8-759-242-64	s	IC TC4W53F
IC8	8-759-902-88	s	IC SN74LS123NS
IC9	8-759-929-21	s	IC TLC27L2CPS
IC10	8-759-038-46	s	IC SC7S00F
IC12	8-752-335-47	s	IC CXD1216M
IC13	8-759-234-20	s	IC TC7S08F
IC14	8-759-234-20	s	IC TC7S08F
IC15	8-759-076-87	s	IC TLC27L4CPW
IC16	8-759-242-64	s	IC TC4W53F
IC17	8-759-234-77	s	IC TC4S66F
IC20	8-759-929-21	s	IC TLC27L2CPS
IC21	8-759-902-88	s	IC SN74LS123NS
IC22	8-759-038-46	s	IC SC7S00F
IC23	8-759-925-90	s	IC SN74HC74ANS

(SG-206P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC24	8-752-332-67	s	IC CXD1217M
IC25	8-759-038-46	s	IC SC7S00F
IC26	8-759-234-77	s	IC TC4S66F
IC27	8-759-038-46	s	IC SC7S00F
IC28	8-759-038-46	s	IC SC7S00F
IC29	8-759-035-93	s	IC TC7S32F
IC30	8-759-038-46	s	IC SC7S00F
IC31	8-759-035-93	s	IC TC7S32F
IC32	8-759-038-46	s	IC SC7S00F
IC33	8-759-925-74	s	IC SN74HC04ANS
IC34	8-759-907-21	s	IC CX-7969
IC35	8-759-038-46	s	IC SC7S00F
IC37	8-759-242-64	s	IC TC4W53F
IC41	8-759-234-20	s	IC TC7S08F
IC42	8-759-038-46	s	IC SC7S00F
IC43	8-759-242-64	s	IC TC4W53F
IC44	1-809-046-11	s	HYBRID IC
IC45	8-759-242-64	s	IC TC4W53F
IC46	8-759-038-46	s	IC SC7S00F
IC47	8-759-926-24	s	IC SN74HC164ANS
IC48	8-759-242-72	s	IC TC7W00F
IC49	8-759-242-76	s	IC TC7W08F
JR1	1-216-864-11	s	METAL, CHIP 0-OHM
L3	1-408-785-21	s	INDUCTOR, CHIP 47uH
L4	1-410-717-31	s	INDUCTOR, CHIP 100uH
L5	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-216-22	s	TRANSISTOR 2SA1162
Q2	8-729-402-19	s	TRANSISTOR XN6501
Q3	8-729-403-29	s	TRANSISTOR XN6435
Q4	8-729-122-63	s	TRANSISTOR 2SA1226
Q5	8-729-216-22	s	TRANSISTOR 2SA1162
Q6	8-729-216-22	s	TRANSISTOR 2SA1162
Q13	8-729-402-19	s	TRANSISTOR XN6501
Q14	8-729-403-29	s	TRANSISTOR XN6435
Q15	8-729-122-63	s	TRANSISTOR 2SA1226
Q17	8-729-402-19	s	TRANSISTOR XN6501
Q18	8-729-216-22	s	TRANSISTOR 2SA1162
Q19	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q20	8-765-930-08	s	TRANSISTOR 3SK163-2
Q22	8-729-216-22	s	TRANSISTOR 2SA1162
Q24	8-729-122-63	s	TRANSISTOR 2SA1226
Q25	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
R1	1-218-740-11	s	METAL 100K 0.50% 1/16W
R2	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R3	1-218-716-11	s	METAL 10K 0.50% 1/16W
R4	1-218-716-11	s	METAL 10K 0.50% 1/16W
R5	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R6	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R7	1-218-716-11	s	METAL 10K 0.50% 1/16W
R8	1-218-724-11	s	METAL 22K 0.50% 1/16W
R9	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R10	1-218-716-11	s	METAL 10K 0.50% 1/16W
R11	1-218-883-11	s	METAL 33K 0.50% 1/16W
R12	1-218-668-11	s	METAL 100 0.50% 1/16W
R13	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R14	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R15	1-218-883-11	s	METAL 33K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(SG-206P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R16	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R17	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R18	1-218-716-11	s	METAL 10K 0.50% 1/16W
R19	1-216-864-11	s	METAL, CHIP 0-OHM
R21	1-218-668-11	s	METAL 100 0.50% 1/16W
R22	1-216-994-11	s	METAL, CHIP 13K 5% 1/16W
R23	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R24	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R25	1-218-288-11	s	METAL, CHIP 300 5% 1/16W
R26	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R27	1-218-744-11	s	METAL 150K 0.50% 1/16W
R28	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R29	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R30	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R31	1-218-290-11	s	METAL 6.2K 0.50% 1/16W
R32	1-216-994-11	s	METAL, CHIP 13K 5% 1/16W
R33	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R34	1-218-668-11	s	METAL 100 0.50% 1/16W
R35	1-218-344-11	s	METAL 7.5K 0.50% 1/16W
R36	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R37	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R38	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R39	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R40	1-218-668-11	s	METAL 100 0.50% 1/16W
R41	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R42	1-218-716-11	s	METAL 10K 0.50% 1/16W
R43	1-218-724-11	s	METAL 22K 0.50% 1/16W
R44	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R45	1-218-716-11	s	METAL 10K 0.50% 1/16W
R46	1-218-883-11	s	METAL 33K 0.50% 1/16W
R47	1-218-668-11	s	METAL 100 0.50% 1/16W
R48	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R49	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R50	1-218-883-11	s	METAL 33K 0.50% 1/16W
R51	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R52	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R53	1-218-716-11	s	METAL 10K 0.50% 1/16W
R54	1-218-668-11	s	METAL 100 0.50% 1/16W
R55	1-218-740-11	s	METAL 100K 0.50% 1/16W
R56	1-218-740-11	s	METAL 100K 0.50% 1/16W
R57	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R58	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R59	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R60	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R91	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R92	1-218-720-11	s	METAL 15K 0.50% 1/16W
R93	1-218-695-11	s	METAL 1.3K 0.50% 1/16W
R94	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R95	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R96	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R97	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R98	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R99	1-218-290-11	s	METAL 6.2K 0.50% 1/16W
R100	1-216-994-11	s	METAL, CHIP 13K 5% 1/16W
R101	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R106	1-216-864-11	s	METAL, CHIP 0-OHM
R108	1-216-864-11	s	METAL, CHIP 0-OHM
R115	1-218-724-11	s	METAL 22K 0.50% 1/16W
R116	1-218-724-11	s	METAL 22K 0.50% 1/16W

(SG-206P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R117	1-218-716-11	s	METAL 10K 0.50% 1/16W
R118	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R119	1-218-716-11	s	METAL 10K 0.50% 1/16W
R120	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R121	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R122	1-218-883-11	s	METAL 33K 0.50% 1/16W
R123	1-218-716-11	s	METAL 10K 0.50% 1/16W
R124	1-218-724-11	s	METAL 22K 0.50% 1/16W
R125	1-218-724-11	s	METAL 22K 0.50% 1/16W
R130	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R131	1-218-740-11	s	METAL 100K 0.50% 1/16W
R132	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R133	1-218-716-11	s	METAL 10K 0.50% 1/16W
R134	1-218-668-11	s	METAL 100 0.50% 1/16W
R136	1-218-720-11	s	METAL 15K 0.50% 1/16W
R141	1-218-740-11	s	METAL 100K 0.50% 1/16W
R142	1-218-668-11	s	METAL 100 0.50% 1/16W
R143	1-216-864-11	s	METAL, CHIP 0-OHM
R145	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R146	1-218-660-11	s	METAL 47 0.50% 1/16W
R147	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R148	1-218-740-11	s	METAL 100K 0.50% 1/16W
R149	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R150	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R151	1-218-668-11	s	METAL 100 0.50% 1/16W
R152	1-218-668-11	s	METAL 100 0.50% 1/16W
R153	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R154	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R155	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R157	1-218-740-11	s	METAL 100K 0.50% 1/16W
R158	1-218-716-11	s	METAL 10K 0.50% 1/16W
R159	1-218-716-11	s	METAL 10K 0.50% 1/16W
R160	1-218-716-11	s	METAL 10K 0.50% 1/16W
R161	1-218-716-11	s	METAL 10K 0.50% 1/16W
R162	1-218-748-11	s	METAL 220K 0.50% 1/16W
R164	1-216-864-11	s	METAL, CHIP 0-OHM
R165	1-218-716-11	s	METAL 10K 0.50% 1/16W
R166	1-218-716-11	s	METAL 10K 0.50% 1/16W
R167	1-216-864-11	s	METAL, CHIP 0-OHM
R169	1-218-740-11	s	METAL 100K 0.50% 1/16W
R170	1-218-740-11	s	METAL 100K 0.50% 1/16W
R171	1-216-861-11	s	METAL, CHIP 2.2M 5% 1/16W
R174	1-218-883-11	s	METAL 33K 0.50% 1/16W
R175	1-218-883-11	s	METAL 33K 0.50% 1/16W
R176	1-218-883-11	s	METAL 33K 0.50% 1/16W
R177	1-216-864-11	s	METAL, CHIP 0-OHM
R179	1-218-668-11	s	METAL 100 0.50% 1/16W
R182	1-218-668-11	s	METAL 100 0.50% 1/16W
R183	1-218-668-11	s	METAL 100 0.50% 1/16W
R184	1-218-695-11	s	METAL 1.3K 0.50% 1/16W
R185	1-218-289-11	s	METAL, CHIP 510 5% 1/16W
R188	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R193	1-218-716-11	s	METAL 10K 0.50% 1/16W
R194	1-218-743-11	s	METAL 130K 0.50% 1/16W
R195	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R196	1-218-716-11	s	METAL 10K 0.50% 1/16W
R197	1-218-716-11	s	METAL 10K 0.50% 1/16W
R198	1-218-716-11	s	METAL 10K 0.50% 1/16W
R199	1-216-864-11	s	METAL, CHIP 0-OHM

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(SG-206P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R200	1-218-740-11	s	METAL 100K 0.50% 1/16W
R202	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R203	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R204	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R205	1-218-740-11	s	METAL 100K 0.50% 1/16W
R207	1-218-716-11	s	METAL 10K 0.50% 1/16W
R209	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R210	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R211	1-218-740-11	s	METAL 100K 0.50% 1/16W
R212	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R216	1-216-864-11	s	METAL, CHIP 0-OHM
R217	1-216-864-11	s	METAL, CHIP 0-OHM
R219	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R220	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R221	1-218-716-11	s	METAL 10K 0.50% 1/16W
R222	1-218-744-11	s	METAL 150K 0.50% 1/16W
R224	1-216-864-11	s	METAL, CHIP 0-OHM
R225	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R226	1-218-724-11	s	METAL 22K 0.50% 1/16W
R229	1-218-724-11	s	METAL 22K 0.50% 1/16W
R230	1-218-724-11	s	METAL 22K 0.50% 1/16W
R231	1-216-864-11	s	METAL, CHIP 0-OHM
R233	1-218-716-11	s	METAL 10K 0.50% 1/16W
R235	1-216-864-11	s	METAL, CHIP 0-OHM
R237	1-216-864-11	s	METAL, CHIP 0-OHM
R238	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R239	1-216-864-11	s	METAL, CHIP 0-OHM
R242	1-218-668-11	s	METAL 100 0.50% 1/16W
R243	1-218-668-11	s	METAL 100 0.50% 1/16W
R244	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R245	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R246	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R247	1-216-864-11	s	METAL, CHIP 0-OHM
R248	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R250	1-216-864-11	s	METAL, CHIP 0-OHM
R252	1-218-740-11	s	METAL 100K 0.50% 1/16W
R254	1-218-668-11	s	METAL 100 0.50% 1/16W
R255	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
RV1	1-237-037-11	s	RES, ADJ, METAL 20K
RV2	1-241-265-11	s	RES, ADJ, CERMET 20K
RV4	1-241-264-11	s	RES, ADJ, CERMET 10K
S1	1-570-610-11	s	SWITCH, TOGGLE
S2	1-570-857-11	s	SWITCH, SLIDE
S3	1-570-610-11	s	SWITCH, TOGGLE
S4	1-570-857-11	s	SWITCH, SLIDE
S6	1-572-658-11	s	SWITCH, ROTARY
S7	1-570-610-11	s	SWITCH, TOGGLE

SW-565 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-643-936-11	o	PRINTED CIRCUIT BOARD, SW-565
CN1	1-580-558-11	o	PIN, CONNECTOR (PC BOARD) 6P
S1	1-570-984-11	s	SWITCH, TOGGLE
S2	1-570-986-11	s	SWITCH, TOGGLE
S3	1-570-985-11	s	SWITCH, TOGGLE

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

SW-570 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-428-A	o	MOUNTED CIRCUIT BOARD, SW-570
1pc	1-566-987-11	o	CONTACT, AWG28-32
1pc	1-568-814-11	o	HOUSING, CONNECTOR 8P
1pc	1-580-580-11	o	HOUSING, 8P
1pc	1-580-599-11	o	CONTACT, FEMALE AWG26-30
C1	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
D1	8-719-933-60	s	DIODE HZS9C2L
IC1	8-759-990-61	s	IC PCF8574T
Q1	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
R1	1-218-716-11	s	METAL 10K 0.50% 1/16W
R2	1-218-716-11	s	METAL 10K 0.50% 1/16W
R3	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R4	1-218-716-11	s	METAL 10K 0.50% 1/16W
R5	1-218-740-11	s	METAL 100K 0.50% 1/16W
R7	1-218-740-11	s	METAL 100K 0.50% 1/16W
R8	1-218-740-11	s	METAL 100K 0.50% 1/16W
R9	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R10	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R11	1-218-740-11	s	METAL 100K 0.50% 1/16W
R12	1-218-740-11	s	METAL 100K 0.50% 1/16W
R13	1-218-740-11	s	METAL 100K 0.50% 1/16W
R14	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R15	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R16	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R17	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R18	1-218-740-11	s	METAL 100K 0.50% 1/16W
R19	1-218-740-11	s	METAL 100K 0.50% 1/16W
R20	1-218-668-11	s	METAL 100 0.50% 1/16W
R21	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
S1	1-554-356-11	s	SWITCH, TOGGLE
S2	1-554-356-11	s	SWITCH, TOGGLE
S3	1-554-356-11	s	SWITCH, TOGGLE
S4	1-554-356-11	s	SWITCH, TOGGLE

SW-571 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-425-A	o	MOUNTED CIRCUIT BOARD, SW-571
1pc	1-565-124-11	o	HOUSING, CONNECTOR 5P
1pc	1-565-163-11	o	TERMINAL, SOLDERLESS
1pc	1-566-987-11	o	CONTACT, AWG28-32
IC1	8-759-990-61	s	IC PCF8574T
S1	1-570-985-11	s	SWITCH, TOGGLE
S2	1-571-396-11	s	SWITCH, TOGGLE
S3	1-571-396-11	s	SWITCH, TOGGLE

SW-572 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-565-121-11	o	HOUSING, CONNECTOR 2P
1pc	1-565-164-21	o	CONTACT, FEMALE AWG28-26
1pc	1-566-987-11	o	CONTACT, AWG28-32
1pc	1-566-988-11	o	HOUSING, CONNECTOR 2P
1pc	1-644-972-12	o	PRINTED CIRCUIT BOARD, SW-572
S1	1-554-980-11	s	SWITCH, TACTILE

SW-573 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-644-973-11	o	PRINTED CIRCUIT BOARD, SW-573
CN2	1-565-135-11	o	PIN, CONNECTOR (STRAIGHT) 2P
S1	1-554-396-00	s	SWITCH, TOGGLE
S2	1-554-395-00	s	SWITCH, TOGGLE
S3	1-570-282-21	s	SWITCH, KEY BOARD

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

TG-123P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-628-A	o	MOUNTED CIRCUIT BOARD, TG-123P
C1	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C2	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C3	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C4	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C6	1-163-222-11	s	CERAMIC 5PF 0.25PF 50V
C15	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C26	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C27	1-135-179-21	s	TANTAL 2.2uF 10% 16V
CN1	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
CN3	1-580-562-11	o	PIN, CONNECTOR (PC BOARD) 14P
CP1	1-579-715-11	s	OSCILLATOR, CRYSTAL 36MHz
D1	8-719-800-76	s	DIODE 1SS226
FL1	1-239-377-11	s	FILTER, LOW-PASS
IC3	8-759-009-02	s	IC MC14046BF
IC4	8-759-906-53	s	IC TL062CPS
IC5	8-759-031-84	s	IC SC7S04F
IC7	8-759-035-93	s	IC TC7S32F
IC9	8-759-234-20	s	IC TC7S08F
IC10	8-759-031-84	s	IC SC7S04F
IC11	8-759-035-93	s	IC TC7S32F
IC12	8-759-234-20	s	IC TC7S08F
IC13	8-759-035-90	s	IC SC7S02F
IC14	8-759-031-84	s	IC SC7S04F
IC15	8-759-031-84	s	IC SC7S04F
IC16	8-759-243-39	s	IC TC74AC00F
JR1	1-216-295-00	s	METAL, CHIP 0-OHM
Q1	8-729-175-73	s	TRANSISTOR 2SC2757
R1	1-216-295-00	s	METAL, CHIP 0-OHM
R5	1-216-295-00	s	METAL, CHIP 0-OHM
R7	1-216-295-00	s	METAL, CHIP 0-OHM
R8	1-216-295-00	s	METAL, CHIP 0-OHM
R11	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R12	1-216-295-00	s	METAL, CHIP 0-OHM
R15	1-216-295-00	s	METAL, CHIP 0-OHM
R16	1-216-295-00	s	METAL, CHIP 0-OHM
R20	1-216-295-00	s	METAL, CHIP 0-OHM
R21	1-218-776-11	s	METAL, CHIP 1M 0.50% 1/10W
R24	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R26	1-216-295-00	s	METAL, CHIP 0-OHM
R27	1-216-295-00	s	METAL, CHIP 0-OHM
R30	1-216-295-00	s	METAL, CHIP 0-OHM
R32	1-216-295-00	s	METAL, CHIP 0-OHM
R34	1-216-295-00	s	METAL, CHIP 0-OHM
R68	1-216-295-00	s	METAL, CHIP 0-OHM
R72	1-216-295-00	s	METAL, CHIP 0-OHM
R77	1-218-763-11	s	METAL 300K 0.50% 1/10W
RV1	1-241-262-11	s	RES, ADJ, CERMET 2K

VA-132 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-620-A	o	MOUNTED CIRCUIT BOARD, VA-132
2pcs	3-175-429-01	s	KNOB, PULL OUT
4pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
2pcs	7-688-001-12	s	W 2, MIDDLE
C5	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C6	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C7	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C8	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C9	1-164-156-11	s	CERAMIC 0.1uF 25V
C10	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C18	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C19	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C20	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C21	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C29	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C30	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C31	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C32	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C33	1-164-156-11	s	CERAMIC 0.1uF 25V
C34	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-164-156-11	s	CERAMIC 0.1uF 25V
C41	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C42	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C43	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C44	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-164-156-11	s	CERAMIC 0.1uF 25V
C55	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V
C66	1-164-156-11	s	CERAMIC 0.1uF 25V
C67	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C68	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C69	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C70	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C71	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-164-156-11	s	CERAMIC 0.1uF 25V
C77	1-137-331-11	s	FILM 0.047uF 5% 16V
C78	1-164-156-11	s	CERAMIC 0.1uF 25V
C79	1-164-156-11	s	CERAMIC 0.1uF 25V
C80	1-164-156-11	s	CERAMIC 0.1uF 25V
C81	1-164-156-11	s	CERAMIC 0.1uF 25V
C82	1-164-357-11	s	CERAMIC 0.001uF 2% 50V
C83	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C84	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C85	1-135-211-11	s	TANTAL 6.8uF 20% 6.3VW
C86	1-164-315-11	s	CERAMIC 470PF 5% 50V
C87	1-137-331-11	s	FILM 0.047uF 5% 16V
C88	1-164-156-11	s	CERAMIC 0.1uF 25V
C89	1-164-156-11	s	CERAMIC 0.1uF 25V
C90	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C91	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C92	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C93	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C94	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C95	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-164-156-11	s	CERAMIC 0.1uF 25V
C98	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C106	1-164-156-11	s	CERAMIC 0.1uF 25V
C107	1-164-156-11	s	CERAMIC 0.1uF 25V
C108	1-164-156-11	s	CERAMIC 0.1uF 25V
C109	1-164-156-11	s	CERAMIC 0.1uF 25V
C110	1-135-181-21	s	TANTAL 4.7uF 10% 6.3V
C111	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C112	1-135-181-21	s	TANTAL 4.7uF 10% 6.3V
C113	1-164-156-11	s	CERAMIC 0.1uF 25V
C114	1-135-201-11	s	TANTALUM 10uF 20% 6.3V
C115	1-164-156-11	s	CERAMIC 0.1uF 25V
C116	1-135-202-21	s	TANTALUM, CHIP 22uF 20% 4V
C117	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C118	1-164-156-11	s	CERAMIC 0.1uF 25V
C119	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C120	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C121	1-164-156-11	s	CERAMIC 0.1uF 25V
C122	1-135-202-21	s	TANTALUM, CHIP 22uF 20% 4V
C123	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C124	1-164-156-11	s	CERAMIC 0.1uF 25V
C125	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C126	1-135-181-21	s	TANTAL 4.7uF 10% 6.3V
C127	1-164-156-11	s	CERAMIC 0.1uF 25V
C128	1-135-202-21	s	TANTALUM, CHIP 22uF 20% 4V
C129	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C130	1-164-156-11	s	CERAMIC 0.1uF 25V
C131	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C132	1-164-156-11	s	CERAMIC 0.1uF 25V
C135	1-164-156-11	s	CERAMIC 0.1uF 25V
C136	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C137	1-135-202-21	s	TANTALUM, CHIP 22uF 20% 4V
C138	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C139	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C140	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C142	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C143	1-124-584-00	s	ELECT 100uF 20% 10V
C153	1-164-156-11	s	CERAMIC 0.1uF 25V
C154	1-164-156-11	s	CERAMIC 0.1uF 25V
C155	1-164-156-11	s	CERAMIC 0.1uF 25V
C156	1-135-202-21	s	TANTALUM, CHIP 22uF 10% 4V
C157	1-135-202-21	s	TANTALUM, CHIP 22uF 10% 4V
C158	1-135-202-21	s	TANTALUM, CHIP 22uF 10% 4V
C159	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
CN1	1-566-960-11	o	CONNECTOR, 50P, MALE

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
CV1	1-141-423-61	s	CAP, ADJ
CV2	1-141-423-61	s	CAP, ADJ
CV3	1-141-369-22	s	CAP, CHIP TRIMMER
D4	8-719-400-18	s	DIODE MA152WK
D5	8-719-800-76	s	DIODE 1SS226
D6	8-719-800-76	s	DIODE 1SS226
FL1	1-402-639-11	s	FILTER, TRAP
FL2	1-402-639-11	s	FILTER, TRAP
FL3	1-402-639-11	s	FILTER, TRAP
IC1	8-752-052-71	s	IC CXA1486Q
IC2	8-759-981-51	s	IC RC1496M
IC3	8-759-511-14	s	IC TLC274CNS
IC4	8-752-052-71	s	IC CXA1486Q
IC5	8-759-981-51	s	IC RC1496M
IC6	8-752-052-71	s	IC CXA1486Q
IC7	8-759-981-51	s	IC RC1496M
IC8	8-759-038-46	s	IC SC7S00F
IC9	8-759-234-20	s	IC TC7S08F
IC10	8-759-038-46	s	IC SC7S00F
IC11	8-759-076-06	s	IC TL064CPW
IC12	8-759-011-65	s	IC MC74HC4053F
IC13	8-759-234-77	s	IC TC4S66F
IC14	8-759-076-06	s	IC TL064CPW
IC15	8-759-234-77	s	IC TC4S66F
IC16	8-759-076-06	s	IC TL064CPW
IC17	8-759-234-77	s	IC TC4S66F
IC18	8-759-234-77	s	IC TC4S66F
IC19	8-759-234-77	s	IC TC4S66F
IC20	8-759-234-77	s	IC TC4S66F
IC21	8-759-234-77	s	IC TC4S66F
IC22	8-759-234-77	s	IC TC4S66F
IC23	8-759-234-77	s	IC TC4S66F
IC24	8-759-233-44	s	IC TC74HC595AF
IC25	8-759-059-50	s	IC MB88351PFV
IC26	8-759-059-50	s	IC MB88351PFV
IC27	8-759-059-50	s	IC MB88351PFV
IC28	8-759-242-64	s	IC TC4W53F
IC29	8-759-076-06	s	IC TL064CPW
IC30	8-759-011-65	s	IC MC74HC4053F
IC31	8-759-209-97	s	IC TC4S81F
IC32	8-759-245-04	s	IC TC4S584F-TE85L
IC33	8-759-038-46	s	IC SC7S00F
JR2	1-216-864-11	s	METAL, CHIP 0-OHM
L1	1-410-381-11	s	INDUCTOR, CHIP 10uH
L2	1-410-381-11	s	INDUCTOR, CHIP 10uH
L3	1-410-381-11	s	INDUCTOR, CHIP 10uH
Q1	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q6	8-729-403-32	s	TRANSISTOR XN6534
Q7	8-729-122-63	s	TRANSISTOR 2SA1226
Q8	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q9	8-729-403-32	s	TRANSISTOR XN6534
Q13	8-729-403-32	s	TRANSISTOR XN6534
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q16	8-729-403-32	s	TRANSISTOR XN6534
Q22	8-729-403-32	s	TRANSISTOR XN6534

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q23	8-729-122-63	s	TRANSISTOR 2SA1226
Q24	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q25	8-729-403-32	s	TRANSISTOR XN6534
Q26	8-729-402-19	s	TRANSISTOR XN6501
Q27	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q28	8-729-216-22	s	TRANSISTOR 2SA1162
Q29	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q30	8-729-216-22	s	TRANSISTOR 2SA1162
Q31	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q32	8-729-216-22	s	TRANSISTOR 2SA1162
Q33	8-729-402-78	s	TRANSISTOR XN6401
Q36	8-729-402-19	s	TRANSISTOR XN6501
Q37	8-729-216-22	s	TRANSISTOR 2SA1162
Q38	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q39	8-729-216-22	s	TRANSISTOR 2SA1162
Q40	8-729-402-19	s	TRANSISTOR XN6501
Q42	8-729-216-22	s	TRANSISTOR 2SA1162
Q43	8-729-122-63	s	TRANSISTOR 2SA1226
Q44	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q45	8-729-122-63	s	TRANSISTOR 2SA1226
Q46	8-729-122-63	s	TRANSISTOR 2SA1226
Q47	8-729-216-22	s	TRANSISTOR 2SA1162
Q48	8-729-122-63	s	TRANSISTOR 2SA1226
Q49	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q50	8-729-122-63	s	TRANSISTOR 2SA1226
Q51	8-729-122-63	s	TRANSISTOR 2SA1226
Q52	8-729-216-22	s	TRANSISTOR 2SA1162
Q53	8-729-122-63	s	TRANSISTOR 2SA1226
Q54	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q55	8-729-122-63	s	TRANSISTOR 2SA1226
Q56	8-729-122-63	s	TRANSISTOR 2SA1226
Q57	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q58	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q59	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q60	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q61	8-729-402-78	s	TRANSISTOR XN6401
Q62	8-729-403-32	s	TRANSISTOR XN6534
Q63	8-729-403-32	s	TRANSISTOR XN6534
Q64	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q65	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q66	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q67	8-765-930-08	s	TRANSISTOR 3SK163-2
Q68	8-765-930-08	s	TRANSISTOR 3SK163-2
Q69	8-765-930-08	s	TRANSISTOR 3SK163-2
R2	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R6	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R9	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R16	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R22	1-218-668-11	s	METAL 100 0.50% 1/16W
R23	1-218-668-11	s	METAL 100 0.50% 1/16W
R24	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R25	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R26	1-218-668-11	s	METAL 100 0.50% 1/16W
R27	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R29	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R30	1-218-668-11	s	METAL 100 0.50% 1/16W
R32	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R33	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R34	1-218-668-11	s	METAL 100 0.50% 1/16W

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R35	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R36	1-218-720-11	s	METAL 15K 0.50% 1/16W
R37	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R38	1-218-723-11	s	METAL 20K 0.50% 1/16W
R39	1-218-716-11	s	METAL 10K 0.50% 1/16W
R40	1-218-680-11	s	METAL 330 0.50% 1/16W
R41	1-218-668-11	s	METAL 100 0.50% 1/16W
R42	1-218-727-11	s	METAL 30K 0.50% 1/16W
R43	1-216-865-11	s	METAL, CHIP 3K 1/16W
R44	1-218-668-11	s	METAL 100 0.50% 1/16W
R45	1-218-668-11	s	METAL 100 0.50% 1/16W
R48	1-218-716-11	s	METAL 10K 0.50% 1/16W
R49	1-218-740-11	s	METAL 100K 0.50% 1/16W
R50	1-218-740-11	s	METAL 100K 0.50% 1/16W
R51	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R52	1-218-723-11	s	METAL 20K 0.50% 1/16W
R53	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R56	1-218-716-11	s	METAL 10K 0.50% 1/16W
R58	1-218-668-11	s	METAL 100 0.50% 1/16W
R59	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R60	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R61	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R62	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R63	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R64	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R65	1-218-724-11	s	METAL 22K 0.50% 1/16W
R66	1-218-457-11	s	METAL 910 0.50% 1/16W
R67	1-218-457-11	s	METAL 910 0.50% 1/16W
R68	1-218-724-11	s	METAL 22K 0.50% 1/16W
R69	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R74	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R75	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R84	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R91	1-218-668-11	s	METAL 100 0.50% 1/16W
R92	1-218-668-11	s	METAL 100 0.50% 1/16W
R93	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R94	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R95	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R96	1-218-668-11	s	METAL 100 0.50% 1/16W
R98	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R99	1-218-668-11	s	METAL 100 0.50% 1/16W
R101	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R102	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R103	1-218-668-11	s	METAL 100 0.50% 1/16W
R104	1-218-720-11	s	METAL 15K 0.50% 1/16W
R105	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R106	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R107	1-218-716-11	s	METAL 10K 0.50% 1/16W
R108	1-218-723-11	s	METAL 20K 0.50% 1/16W
R109	1-218-680-11	s	METAL 330 0.50% 1/16W
R110	1-218-668-11	s	METAL 100 0.50% 1/16W
R111	1-216-865-11	s	METAL, CHIP 3K 1/16W
R112	1-218-727-11	s	METAL 30K 0.50% 1/16W
R113	1-218-668-11	s	METAL 100 0.50% 1/16W
R115	1-218-668-11	s	METAL 100 0.50% 1/16W
R116	1-218-716-11	s	METAL 10K 0.50% 1/16W
R118	1-218-740-11	s	METAL 100K 0.50% 1/16W
R119	1-218-740-11	s	METAL 100K 0.50% 1/16W
R120	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R121	1-218-723-11	s	METAL 20K 0.50% 1/16W
R122	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R125	1-218-716-11	s	METAL 10K 0.50% 1/16W
R127	1-218-668-11	s	METAL 100 0.50% 1/16W
R128	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R129	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R130	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R131	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R132	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R133	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R134	1-218-457-11	s	METAL 910 0.50% 1/16W
R135	1-218-724-11	s	METAL 22K 0.50% 1/16W
R136	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R137	1-218-457-11	s	METAL 910 0.50% 1/16W
R138	1-218-724-11	s	METAL 22K 0.50% 1/16W
R143	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R144	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R145	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R160	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R169	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R176	1-218-668-11	s	METAL 100 0.50% 1/16W
R177	1-218-668-11	s	METAL 100 0.50% 1/16W
R178	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R179	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R180	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R181	1-218-668-11	s	METAL 100 0.50% 1/16W
R183	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R184	1-218-668-11	s	METAL 100 0.50% 1/16W
R186	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R187	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R188	1-218-668-11	s	METAL 100 0.50% 1/16W
R189	1-218-720-11	s	METAL 15K 0.50% 1/16W
R190	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R191	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R192	1-218-716-11	s	METAL 10K 0.50% 1/16W
R193	1-218-723-11	s	METAL 20K 0.50% 1/16W
R194	1-218-680-11	s	METAL 330 0.50% 1/16W
R195	1-218-668-11	s	METAL 100 0.50% 1/16W
R196	1-216-865-11	s	METAL, CHIP 3K 1/16W
R197	1-218-727-11	s	METAL 30K 0.50% 1/16W
R198	1-218-668-11	s	METAL 100 0.50% 1/16W
R200	1-218-668-11	s	METAL 100 0.50% 1/16W
R201	1-218-716-11	s	METAL 10K 0.50% 1/16W
R203	1-218-740-11	s	METAL 100K 0.50% 1/16W
R204	1-218-740-11	s	METAL 100K 0.50% 1/16W
R205	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R206	1-218-723-11	s	METAL 20K 0.50% 1/16W
R207	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R210	1-218-716-11	s	METAL 10K 0.50% 1/16W
R212	1-218-668-11	s	METAL 100 0.50% 1/16W
R213	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R214	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R215	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R216	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R217	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R218	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R219	1-218-457-11	s	METAL 910 0.50% 1/16W
R220	1-218-724-11	s	METAL 22K 0.50% 1/16W
R221	1-218-714-11	s	METAL 8.2K 0.50% 1/16W

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R222	1-218-457-11	s	METAL 910 0.50% 1/16W
R223	1-218-724-11	s	METAL 22K 0.50% 1/16W
R228	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R229	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R230	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R231	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R232	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R233	1-218-740-11	s	METAL 100K 0.50% 1/16W
R236	1-216-864-11	s	METAL, CHIP 0-OHM
R237	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R239	1-218-740-11	s	METAL 100K 0.50% 1/16W
R240	1-218-740-11	s	METAL 100K 0.50% 1/16W
R241	1-218-732-11	s	METAL 47K 0.50% 1/16W
R242	1-218-746-11	s	METAL 180K 0.50% 1/16W
R243	1-218-724-11	s	METAL 22K 0.50% 1/16W
R244	1-218-740-11	s	METAL 100K 0.50% 1/16W
R245	1-218-732-11	s	METAL 47K 0.50% 1/16W
R246	1-218-740-11	s	METAL 100K 0.50% 1/16W
R247	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R248	1-218-740-11	s	METAL 100K 0.50% 1/16W
R249	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R250	1-218-740-11	s	METAL 100K 0.50% 1/16W
R251	1-218-723-11	s	METAL 20K 0.50% 1/16W
R252	1-218-716-11	s	METAL 10K 0.50% 1/16W
R253	1-218-740-11	s	METAL 100K 0.50% 1/16W
R254	1-218-740-11	s	METAL 100K 0.50% 1/16W
R255	1-218-748-11	s	METAL 220K 0.50% 1/16W
R256	1-218-740-11	s	METAL 100K 0.50% 1/16W
R257	1-218-740-11	s	METAL 100K 0.50% 1/16W
R258	1-218-748-11	s	METAL 220K 0.50% 1/16W
R259	1-218-748-11	s	METAL 220K 0.50% 1/16W
R260	1-218-748-11	s	METAL 220K 0.50% 1/16W
R261	1-218-748-11	s	METAL 220K 0.50% 1/16W
R262	1-218-748-11	s	METAL 220K 0.50% 1/16W
R263	1-218-748-11	s	METAL 220K 0.50% 1/16W
R264	1-218-740-11	s	METAL 100K 0.50% 1/16W
R265	1-218-748-11	s	METAL 220K 0.50% 1/16W
R266	1-218-748-11	s	METAL 220K 0.50% 1/16W
R267	1-218-716-11	s	METAL 10K 0.50% 1/16W
R268	1-218-748-11	s	METAL 220K 0.50% 1/16W
R269	1-218-748-11	s	METAL 220K 0.50% 1/16W
R270	1-218-748-11	s	METAL 220K 0.50% 1/16W
R271	1-218-748-11	s	METAL 220K 0.50% 1/16W
R272	1-218-748-11	s	METAL 220K 0.50% 1/16W
R273	1-218-748-11	s	METAL 220K 0.50% 1/16W
R274	1-218-748-11	s	METAL 220K 0.50% 1/16W
R275	1-218-748-11	s	METAL 220K 0.50% 1/16W
R276	1-218-748-11	s	METAL 220K 0.50% 1/16W
R277	1-218-748-11	s	METAL 220K 0.50% 1/16W
R278	1-218-748-11	s	METAL 220K 0.50% 1/16W
R279	1-218-748-11	s	METAL 220K 0.50% 1/16W
R280	1-218-740-11	s	METAL 100K 0.50% 1/16W
R281	1-218-740-11	s	METAL 100K 0.50% 1/16W
R282	1-218-740-11	s	METAL 100K 0.50% 1/16W
R285	1-218-748-11	s	METAL 220K 0.50% 1/16W
R286	1-218-748-11	s	METAL 220K 0.50% 1/16W
R287	1-218-748-11	s	METAL 220K 0.50% 1/16W
R290	1-218-883-11	s	METAL 33K 0.50% 1/16W
R293	1-218-883-11	s	METAL 33K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R294	1-218-883-11	s	METAL 33K 0.50% 1/16W
R298	1-218-723-11	s	METAL 20K 0.50% 1/16W
R299	1-218-723-11	s	METAL 20K 0.50% 1/16W
R300	1-218-727-11	s	METAL 30K 0.50% 1/16W
R301	1-218-727-11	s	METAL 30K 0.50% 1/16W
R302	1-218-727-11	s	METAL 30K 0.50% 1/16W
R303	1-218-883-11	s	METAL 33K 0.50% 1/16W
R304	1-218-883-11	s	METAL 33K 0.50% 1/16W
R305	1-218-883-11	s	METAL 33K 0.50% 1/16W
R306	1-218-883-11	s	METAL 33K 0.50% 1/16W
R307	1-218-883-11	s	METAL 33K 0.50% 1/16W
R308	1-218-883-11	s	METAL 33K 0.50% 1/16W
R309	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R310	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R311	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R312	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R313	1-216-795-11	s	METAL, CHIP 6.8K 5% 1/16W
R314	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R315	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R316	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R335	1-218-716-11	s	METAL 10K 0.50% 1/16W
R336	1-218-716-11	s	METAL 10K 0.50% 1/16W
R337	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R338	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R339	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R342	1-218-716-11	s	METAL 10K 0.50% 1/16W
R344	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R345	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R349	1-218-883-11	s	METAL 33K 0.50% 1/16W
R350	1-218-883-11	s	METAL 33K 0.50% 1/16W
R351	1-218-883-11	s	METAL 33K 0.50% 1/16W
R352	1-218-883-11	s	METAL 33K 0.50% 1/16W
R353	1-218-732-11	s	METAL 47K 0.50% 1/16W
R354	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R355	1-218-744-11	s	METAL 150K 0.50% 1/16W
R356	1-218-716-11	s	METAL 10K 0.50% 1/16W
R357	1-218-716-11	s	METAL 10K 0.50% 1/16W
R358	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R359	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R360	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R361	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R362	1-218-740-11	s	METAL 100K 0.50% 1/16W
R363	1-218-740-11	s	METAL 100K 0.50% 1/16W
R364	1-218-740-11	s	METAL 100K 0.50% 1/16W
R365	1-218-740-11	s	METAL 100K 0.50% 1/16W
R366	1-218-716-11	s	METAL 10K 0.50% 1/16W
R367	1-218-716-11	s	METAL 10K 0.50% 1/16W
R368	1-218-733-11	s	METAL 51K 0.50% 1/16W
R369	1-218-733-11	s	METAL 51K 0.50% 1/16W
R370	1-218-716-11	s	METAL 10K 0.50% 1/16W
R371	1-218-716-11	s	METAL 10K 0.50% 1/16W
R372	1-218-716-11	s	METAL 10K 0.50% 1/16W
R373	1-218-716-11	s	METAL 10K 0.50% 1/16W
R374	1-218-716-11	s	METAL 10K 0.50% 1/16W
R375	1-218-716-11	s	METAL 10K 0.50% 1/16W
R376	1-218-716-11	s	METAL 10K 0.50% 1/16W
R377	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R378	1-218-272-11	s	METAL 5.1K 0.50% 1/16W
R379	1-218-295-11	s	METAL 5.6K 0.50% 1/16W

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R380	1-220-373-11	s	METAL 620 0.50% 1/16W
R381	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R382	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R383	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R384	1-218-668-11	s	METAL 100 0.50% 1/16W
R385	1-216-864-11	s	METAL, CHIP 0-OHM
R386	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R387	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R388	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R389	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R390	1-218-675-11	s	METAL 200 0.50% 1/16W
R391	1-218-732-11	s	METAL 47K 0.50% 1/16W
R393	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R394	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R395	1-216-864-11	s	METAL, CHIP 0-OHM
R397	1-218-668-11	s	METAL 100 0.50% 1/16W
R398	1-218-668-11	s	METAL 100 0.50% 1/16W
R399	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R400	1-216-791-11	s	METAL, CHIP 3.3 5% 1/16W
R401	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R402	1-218-668-11	s	METAL 100 0.50% 1/16W
R403	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R404	1-220-373-11	s	METAL 620 0.50% 1/16W
R405	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R406	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R407	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R408	1-218-668-11	s	METAL 100 0.50% 1/16W
R409	1-216-864-11	s	METAL, CHIP 0-OHM
R410	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R411	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R412	1-218-732-11	s	METAL 47K 0.50% 1/16W
R414	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R415	1-218-668-11	s	METAL 100 0.50% 1/16W
R416	1-218-668-11	s	METAL 100 0.50% 1/16W
R417	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R418	1-216-791-11	s	METAL, CHIP 3.3 5% 1/16W
R419	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R420	1-218-668-11	s	METAL 100 0.50% 1/16W
R421	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R423	1-218-716-11	s	METAL 10K 0.50% 1/16W
R424	1-220-373-11	s	METAL 620 0.50% 1/16W
R425	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R426	1-218-680-11	s	METAL 330 0.50% 1/16W
R427	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R428	1-218-457-11	s	METAL 910 0.50% 1/16W
R429	1-216-864-11	s	METAL, CHIP 0-OHM
R430	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R431	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R432	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R434	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R435	1-218-668-11	s	METAL 100 0.50% 1/16W
R436	1-218-668-11	s	METAL 100 0.50% 1/16W
R437	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R438	1-216-791-11	s	METAL, CHIP 3.3 5% 1/16W
R439	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R440	1-218-668-11	s	METAL 100 0.50% 1/16W
R441	1-216-804-11	s	METAL, CHIP 39K 5% 1/16W
R442	1-218-740-11	s	METAL 100K 0.50% 1/16W
R443	1-218-704-11	s	METAL 3.3K 0.50% 1/16W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R444	1-218-716-11	s	METAL 10K 0.50% 1/16W
R445	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R446	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R447	1-218-668-11	s	METAL 100 0.50% 1/16W
R448	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R449	1-218-716-11	s	METAL 10K 0.50% 1/16W
R450	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R451	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R452	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R453	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R454	1-218-748-11	s	METAL 220K 0.50% 1/16W
R455	1-218-748-11	s	METAL 220K 0.50% 1/16W
R456	1-218-748-11	s	METAL 220K 0.50% 1/16W
R457	1-218-748-11	s	METAL 220K 0.50% 1/16W
R458	1-218-748-11	s	METAL 220K 0.50% 1/16W
R459	1-218-748-11	s	METAL 220K 0.50% 1/16W
R460	1-216-791-11	s	METAL, CHIP 3.3 5% 1/16W
R461	1-216-791-11	s	METAL, CHIP 3.3 5% 1/16W
R462	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R463	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R464	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R465	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R466	1-216-864-11	s	METAL, CHIP 0-OHM
R467	1-216-864-11	s	METAL, CHIP 0-OHM
R468	1-216-864-11	s	METAL, CHIP 0-OHM
R469	1-218-748-11	s	METAL 220K 0.50% 1/16W
R470	1-218-748-11	s	METAL 220K 0.50% 1/16W
R471	1-218-748-11	s	METAL 220K 0.50% 1/16W
R475	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R476	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R477	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R490	1-218-716-11	s	METAL 10K 0.50% 1/16W
R495	1-218-296-11	s	METAL, CHIP 75K 5% 1/16W
R496	1-218-272-11	s	METAL 5.1K 0.50% 1/16W
R497	1-218-732-11	s	METAL 47K 0.50% 1/16W
R498	1-218-732-11	s	METAL 47K 0.50% 1/16W
R499	1-218-732-11	s	METAL 47K 0.50% 1/16W
R500	1-218-752-11	s	METAL 330K 0.50% 1/16W
R501	1-218-746-11	s	METAL 180K 0.50% 1/16W
R502	1-218-746-11	s	METAL 180K 0.50% 1/16W
R508	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R509	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R510	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
RV1	1-237-033-11	s	RES, ADJ, METAL 1K
RV2	1-241-263-11	s	RES, ADJ, CERMET 5K
RV3	1-241-263-11	s	RES, ADJ, CERMET 5K
RV4	1-237-037-11	s	RES, ADJ, METAL 20K
RV5	1-237-035-11	s	RES, ADJ, METAL 5K
RV6	1-237-036-11	s	RES, ADJ, METAL 10K
RV9	1-241-264-11	s	RES, ADJ, CERMET 10K
RV11	1-237-033-11	s	RES, ADJ, METAL 1K
RV12	1-241-263-11	s	RES, ADJ, CERMET 5K
RV13	1-241-263-11	s	RES, ADJ, CERMET 5K
RV14	1-237-037-11	s	RES, ADJ, METAL 20K
RV15	1-237-035-11	s	RES, ADJ, METAL 5K
RV16	1-237-036-11	s	RES, ADJ, METAL 10K
RV19	1-241-264-11	s	RES, ADJ, CERMET 10K
RV21	1-237-032-11	s	RES, ADJ, METAL 500

(VA-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV22	1-241-263-11	s	RES, ADJ, CERMET 5K
RV23	1-241-263-11	s	RES, ADJ, CERMET 5K
RV24	1-237-037-11	s	RES, ADJ, METAL 20K
RV25	1-237-035-11	s	RES, ADJ, METAL 5K
RV26	1-237-036-11	s	RES, ADJ, METAL 10K
RV29	1-241-264-11	s	RES, ADJ, CERMET 10K
RV31	1-241-836-11	s	RES, ADJ, CERMET 100K
RV32	1-241-836-11	s	RES, ADJ, CERMET 100K
RV33	1-241-836-11	s	RES, ADJ, CERMET 100K
RV34	1-241-836-11	s	RES, ADJ, CERMET 100K
RV35	1-241-836-11	s	RES, ADJ, CERMET 100K
RV36	1-241-836-11	s	RES, ADJ, CERMET 100K
RV37	1-241-836-11	s	RES, ADJ, CERMET 100K
RV38	1-241-836-11	s	RES, ADJ, CERMET 100K
RV39	1-241-836-11	s	RES, ADJ, CERMET 100K
RV40	1-241-836-11	s	RES, ADJ, CERMET 100K
RV41	1-241-836-11	s	RES, ADJ, CERMET 100K
RV42	1-241-836-11	s	RES, ADJ, CERMET 100K
RV43	1-241-836-11	s	RES, ADJ, CERMET 100K
RV44	1-241-836-11	s	RES, ADJ, CERMET 100K
RV45	1-241-836-11	s	RES, ADJ, CERMET 100K
RV46	1-241-836-11	s	RES, ADJ, CERMET 100K
RV47	1-241-836-11	s	RES, ADJ, CERMET 100K
RV48	1-241-836-11	s	RES, ADJ, CERMET 100K
RV49	1-241-836-11	s	RES, ADJ, CERMET 100K
RV50	1-241-836-11	s	RES, ADJ, CERMET 100K
RV51	1-241-836-11	s	RES, ADJ, CERMET 100K
RV52	1-241-836-11	s	RES, ADJ, CERMET 100K
RV53	1-241-836-11	s	RES, ADJ, CERMET 100K
RV54	1-241-836-11	s	RES, ADJ, CERMET 100K
RV55	1-241-265-11	s	RES, ADJ, CERMET 20K
RV56	1-241-265-11	s	RES, ADJ, CERMET 20K
RV57	1-241-265-11	s	RES, ADJ, CERMET 20K
RV58	1-241-834-11	s	RES, ADJ, CERMET 20K
RV59	1-241-834-11	s	RES, ADJ, CERMET 20K
RV60	1-241-836-11	s	RES, ADJ, CERMET 100K
RV61	1-241-836-11	s	RES, ADJ, CERMET 100K
RV62	1-241-836-11	s	RES, ADJ, CERMET 100K
RV63	1-241-836-11	s	RES, ADJ, CERMET 100K
RV64	1-241-836-11	s	RES, ADJ, CERMET 100K
RV65	1-241-836-11	s	RES, ADJ, CERMET 100K
S1	1-572-328-31	s	SWITCH, CHIP

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

VF-51 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-627-A	o	MOUNTED CIRCUIT BOARD, VF-51
C1	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C2	1-135-125-21	s	TANTALUM, CHIP 33uF 20% 10V
C4	1-135-155-21	s	TANTALUM, CHIP 4.7uF 10% 16V
C8	1-163-115-00	s	CERAMIC, CHIP 82PF 5% 50V
C13	1-131-374-00	s	TANTALUM 33uF 10% 16V
C14	1-131-374-00	s	TANTALUM 33uF 10% 16V
C15	⚠1-136-534-11	s	FILM 0.0027uF 5% 100V
C16	1-136-287-11	s	FILM 0.0047uF 5% 100V
C21	1-164-350-11	s	CERAMIC 470PF 10% 1KV
C22	1-126-233-11	s	ELECT 22uF 20% 50V
C23	1-163-833-00	s	CERAMIC, CHIP 0.068uF 25V
C24	1-131-365-00	s	TANTALUM 10uF 10% 20V
C25	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C26	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C27	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C30	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C31	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C33	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C34	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C35	1-136-287-11	s	FILM 0.0047uF 5% 100V
C37	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C38	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C39	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C41	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C42	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C45	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C46	1-126-176-11	s	ELECT 220uF 20% 10V
C47	1-124-455-00	s	ELECT 100uF 20% 16V
C49	1-163-243-11	s	CERAMIC 47PF 5% 50V
CN1	1-580-534-11	o	PIN, CONNECTOR (PC BOARD) 10P
CN2	1-580-535-11	o	PIN, CONNECTOR (PC BOARD) 12P
CN4	1-506-470-11	o	CONNECTOR, 5P, MALE
CN5	1-506-470-11	o	CONNECTOR, 5P, MALE
CV1	1-141-369-22	s	CAP, CHIP TRIMMER
D1	8-719-985-53	s	DIODE HZS4ALL
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-900-95	s	DIODE V09G
D5	8-719-901-19	s	DIODE V11N
D6	8-719-900-95	s	DIODE V09G
D7	8-719-400-18	s	DIODE MA152WK
D8	8-719-400-18	s	DIODE MA152WK
D9	8-719-800-76	s	DIODE 1SS226
D10	8-719-800-76	s	DIODE 1SS226
D11	8-719-400-18	s	DIODE MA152WK
D12	8-719-933-47	s	DIODE HZS7B2L
D13	8-719-104-34	s	DIODE 1S2836
DL1	1-415-487-11	s	DELAY LINE 140nS
IC1	⚠8-759-300-28	s	IC HA11423MP
IC2	8-759-100-94	s	IC UPC358G2
IC3	8-759-209-57	s	IC TC4S69F
IC4	8-759-209-54	s	IC TC4S01F
L2	⚠1-459-899-11	s	COIL, HORIZONTAL LINEARITY
L3	1-410-716-31	s	INDUCTOR, CHIP 82uH
Q1	8-729-175-72	s	TRANSISTOR 2SC2757-T33

(VF-51 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q2	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q3	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q4	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q5	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q6	8-729-105-37	s	TRANSISTOR 2SC3360
Q7	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q8	8-729-119-00	s	TRANSISTOR 2SK612
Q9	8-729-119-00	s	TRANSISTOR 2SK612
Q10	8-729-105-37	s	TRANSISTOR 2SC3360
Q11	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q12	8-729-216-22	s	TRANSISTOR 2SA1162
Q13	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q14	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q15	8-729-216-22	s	TRANSISTOR 2SA1162
Q16	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q17	8-729-109-44	s	TRANSISTOR 2SK94
Q18	8-729-216-22	s	TRANSISTOR 2SA1162
R2	1-216-009-00	s	METAL, CHIP 22 5% 1/10W
R7	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R13	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R18	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R21	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R24	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R29	1-214-520-00	s	METAL FILM 30 1% 1/8W
R31	1-216-133-00	s	METAL, CHIP 3.3M 5% 1/10W
R33	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R35	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R36	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R37	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R38	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R39	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R40	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R41	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R42	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R44	1-216-027-00	s	METAL, CHIP 120 5% 1/10W
R45	1-216-093-00	s	METAL, CHIP 68K 5% 1/10W
R46	1-215-490-00	s	METAL 750K 1% 1/6W
R47	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R48	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R49	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R50	⚠1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R51	⚠1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R52	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R54	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R55	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R56	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R57	1-216-005-00	s	METAL 15 5% 1/10W
R58	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R59	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R60	1-216-308-00	s	METAL, CHIP 4.7 5% 1/10W
R61	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R62	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R63	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R64	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R65	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R67	1-216-031-00	s	METAL, CHIP 180 5% 1/10W
R68	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R69	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

(VF-51 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R75	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R76	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R77	1-216-133-00	s	METAL, CHIP 3.3M 5% 1/10W
R78	1-216-133-00	s	METAL, CHIP 3.3M 5% 1/10W
R80	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R88	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R89	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R94	1-216-309-00	s	METAL, CHIP 5.6 5% 1/10W
R95	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R96	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R97	1-216-133-00	s	METAL, CHIP 3.3M 5% 1/10W
R98	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R99	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R100	1-216-133-00	s	METAL, CHIP 3.3M 5% 1/10W
R101	1-216-133-00	s	METAL, CHIP 3.3M 5% 1/10W
RV1	1-237-035-11	s	RES, ADJ, METAL 5K
RV2	1-237-035-11	s	RES, ADJ, METAL 5K
RV3	1-237-035-11	s	RES, ADJ, METAL 5K
RV4	1-237-041-11	s	RES, ADJ, METAL 500K
RV5	1-237-035-11	s	RES, ADJ, METAL 5K
RV6	1-237-031-11	s	RES, ADJ, METAL 200
RV7	1-237-032-11	s	RES, ADJ, METAL 500
RV8	1-237-032-11	s	RES, ADJ, METAL 500
RV9	1-237-038-11	s	RES, ADJ, METAL 50K
T1	⚠1-439-419-12	s	TRANSFORMER, FLYBACK
VDR1	1-806-497-00	s	VARISTOR ERZ-C05DK220

VR-151 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-434-A	o	MOUNTED CIRCUIT BOARD, VR-151
1pc	1-562-735-11	o	HOUSING, 2P
4pcs	1-564-832-11	o	CONTACT
1pc	1-565-121-11	o	HOUSING, CONNECTOR 2P
1pc	1-565-163-11	o	TERMINAL, SOLDERLESS
1pc	1-580-579-11	o	HOUSING, 6P
1pc	1-580-581-11	o	HOUSING, 10P
1pc	1-580-582-11	o	HOUSING, 12P
3pcs	1-580-599-11	o	CONTACT, FEMALE AWG26-30
C5	1-135-160-21	s	TANTALUM, CHIP 15uF 10% 16V
C6	1-135-155-21	s	TANTALUM, CHIP 4.7uF 10% 16V
C7	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C10	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C11	1-124-584-00	s	ELECT 100uF 20% 10V
CN24	1-565-152-11	o	PIN, CONNECTOR (ANGLE) 5P
IC1	8-759-939-51	s	IC BA225F
Q1	8-729-901-06	s	TRANSISTOR DTA144EK
Q2	8-729-901-06	s	TRANSISTOR DTA144EK
Q3	8-729-901-06	s	TRANSISTOR DTA144EK
Q4	8-729-402-19	s	TRANSISTOR XN6501
Q5	8-729-901-06	s	TRANSISTOR DTA144EK
Q7	8-729-402-19	s	TRANSISTOR XN6501
R12	1-218-772-11	s	METAL 680K 0.50% 1/10W
R20	1-218-756-11	s	METAL, CHIP 150K 0.50% 1/10W
R22	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R23	1-216-295-00	s	METAL, CHIP 0-OHM
RV1	1-238-296-11	s	RES, VAR, CARBON 10K
RV2	1-238-296-11	s	RES, VAR, CARBON 10K
RV3	1-238-290-11	s	RES, VAR, CARBON 1K
RV4	1-238-293-11	s	RES, VAR, CARBON 10K

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

MAIN FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-466-768-11	s	CONVERTER UNIT, DC-DC
1pc	1-540-194-11	s	SOCKET, IC
1pc	1-547-579-11	o	FILTER UNIT, OPTICAL
CN21	1-565-051-11	o	CONNECTOR, 20P, FEMALE "VF"
CN22	1-695-841-11	s	CONNECTOR (ROUND TYPE)(R-F)12P "LENS"
CN23	1-562-222-41	s	CONNECTOR,6P,FEMALE "REMOTE"
CN25	1-562-261-21	o	CONNECTOR, COAXIAL, BNC "TEST OUT"
CN112F(to MB-455 board)			
	1-565-122-11	o	HOUSING, 3P
	1-565-163-11	o	CONTACT
CN115F(to MB-455 board)			
	1-580-582-11	o	HOUSING, 12P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN116F(to MB-455 board)			
	1-580-583-11	o	HOUSING, 14P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN117F(to MB-455 board)			
	1-580-584-11	o	HOUSING, 16P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN118F(to MB-455 board)			
	1-580-583-11	o	HOUSING, 14P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN119F(to MB-455 board)			
	1-580-583-11	o	HOUSING, 14P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN120F(to MB-455 board)			
	1-565-132-11	o	HOUSING, 13P
	1-565-163-11	o	CONTACT
CN123F(to MB-455 board)			
	1-580-586-11	o	HOUSING, 20P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN124F(to MB-455 board)			
	1-580-582-11	o	HOUSING, 12P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN302F(to RG-32 board)			
	1-565-125-11	o	HOUSING, 6P
	1-565-163-11	o	CONTACT
CN304F(to rg-32 board)			
	1-565-133-11	o	HOUSING, 14P
	1-565-163-11	o	CONTACT
CN305F(to RG-32 board)			
	1-565-132-11	o	HOUSING, 13P
	1-565-163-11	o	CONTACT
CN307F(to MB-455 board)			
	1-580-583-11	o	HOUSING, 14P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN309F(to RG-31 board)			
	1-565-121-11	o	HOUSING, 2P
	1-565-163-11	o	CONTACT

(MAIN FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
CN402F(to CN-776 board)			
	1-565-122-11	o	HOUSING, 3P
	1-565-163-11	o	CONTACT
CN405F(to CN-776 board)			
	1-580-580-11	o	HOUSING, 8P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

VIEWFINDER FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-542-106-11	s	MICROPHONE
1pc	⚠1-546-092-41	s	1.5" CRT ASSY
1pc	1-950-550-11	s	HARNESS (VF CABLE)

PACKING MATERIALS & SUPPLIED ACCESSORIES

(BVP-90P)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-439-A	o	MOUNTED CIRCUIT BOARD, EX-389
1pc	3-168-293-01	s	CAP, SCREW
1pc	3-173-378-01	o	CAP (50P), DUST
1pc	3-180-079-01	o	COVER, HANDLE BLIND
1pc	3-711-780-01	s	COVER, RAIN
1pc	3-720-955-02	s	LID, VF MICROPHONE

(BVW-590P)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6772-374-A	o	BELT ASSY, SHOULDER
1pc	A-8267-257-A	o	HANDLE ASSY
1pc	A-8276-439-A	o	MOUNTED CIRCUIT BOARD, EX-389
1pc	3-168-293-01	s	CAP, SCREW
1pc	3-173-378-01	s	CAP (50P), DUST
1pc	3-180-079-01	o	COVER, HANDLE BLIND
1pc	3-676-269-01	s	CAP (SOCKET SIDE), DUST
1pc	3-711-780-01	s	COVER, RAIN
5pcs	3-717-823-01	s	COVER, BNC
2pcs	3-718-047-01	s	CAP, 4P DROP PROTECTION
1pc	3-720-955-02	s	LID, VF MICROPHONE
1pc	7-721-130-36	s	WRENCH, HEX. (3/16 INCH)

Please see pages D-12 and D-13 for the part numbers of capacitors and resistors that are not listed in the parts list.

SECTION E
CHANGED PARTS

NOTE: The numbers identified by making with) are matching with each serial numbers.

AT-77 BOARD

Old)	C52	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
207)	C52	1-162-964-11	s CERAMIC 0.001uF 10% 50V

EN-107P BOARD

Old)	C221	NOT IN USE.	
206)	C221	1-162-921-11	s CERAMIC, CHIP 33PF 5% 50V
Old)	C222	NOT IN USE.	
206)	C222	1-162-925-11	s CERAMIC, CHIP 68PF 5% 50V
Old)	C223	NOT IN USE.	
206)	C223	1-162-911-11	s CERAMIC, CHIP 6PF 0.5PF 50V
Old)	C225	NOT IN USE.	
208)	C225	1-131-370-00	s TANTALUM 6.8uF 10% 16V

SG-206P BOARD

Old)	C15	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
206)	C15	1-162-917-11	s CERAMIC, CHIP 15PF 5% 50V
Old)	D14	8-719-911-19	s DIODE 1SS119
211)	D14	8-719-800-76	s DIODE 1SS226
Old)	D15	8-719-101-98	s DIODE 1SS97-0
211)	D15	8-719-974-76	s DIODE HSM107S
Old)	IC15	8-759-092-74	s IC TLC27L4CDB
211)	IC15	8-759-076-87	s IC TLC27L4CPW
Old)	R2	1-218-721-11	s METAL 16K 0.50% 1/16W
207)	R2	1-218-714-11	s METAL 8.2K 0.50% 1/16W
Old)	R60	1-218-700-11	s METAL 2.2K 0.50% 1/16W
211)	R60	1-218-714-11	s METAL 8.2K 0.50% 1/16W
Old)	R241	1-216-864-11	s METAL, CHIP 0-OHM
211)	R241	DELETED.	
Old)	R256	1-218-295-11	s METAL 5.6K 0.50% 1/16W
211)	R256	DELETED.	

SW-572 BOARD

Old)	S1	1-570-472-11	s SWITCH, KEY BOARD
206)	S1	1-554-980-11	s SWITCH, TACTILE

206) Serial No. 40048 and higher
207) Serial No. 40068 and higher
208) Serial No. 40102 and higher
210) Serial No. 40137 and higher
211) Serial No. 40153 and higher

VA-132 BOARD

Old)	R478	1-216-864-11	s METAL, CHIP 0-OHM
211)	R478	DELETED.	
Old)	R479	1-216-864-11	s METAL, CHIP 0-OHM
211)	R479	DELETED.	
Old)	R480	1-216-864-11	s METAL, CHIP 0-OHM
211)	R480	DELETED.	
Old)	R508	NOT IN USE.	
211)	R508	1-218-704-11	s METAL 3.3K 0.50% 1/16W
Old)	R509	NOT IN USE.	
211)	R509	1-218-704-11	s METAL 3.3K 0.50% 1/16W
Old)	R510	NOT IN USE.	
211)	R510	1-218-704-11	s METAL 3.3K 0.50% 1/16W
Old)	RV2	1-241-262-11	s RES, ADJ, CERMET 2K
207)	RV2	1-241-263-11	s RES, ADJ, CERMET 5K
Old)	RV12	1-241-262-11	s RES, ADJ, CERMET 2K
207)	RV12	1-241-263-11	s RES, ADJ, CERMET 5K
Old)	RV22	1-241-262-11	s RES, ADJ, CERMET 2K
207)	RV22	1-241-263-11	s RES, ADJ, CERMET 5K

VR-157 BOARD

Old)	1pc	1-565-122-11	o HOUSING, 3P
207)	1pc	DELETED	
Old)	1pc	1-565-163-11	o TERMINAL, SOLDERLESS
207)	1pc	DELETED	
Old)	1pc	1-644-971-11	o PRINTED CIRCUIT BOARD, VR-157
207)	1pc	DELETED.	
Old)	RV1	1-223-165-00	s RES, ADJ, WIREWOUND 10K
207)	RV1	DELETED.	

PACKING MATERIALS & SUPPLIED ACCESSORIES

(BVW-590P)

Old)	1pc	NOT IN USE.	
210)	1pc	A-8267-257-A	o HANDLE ASSY